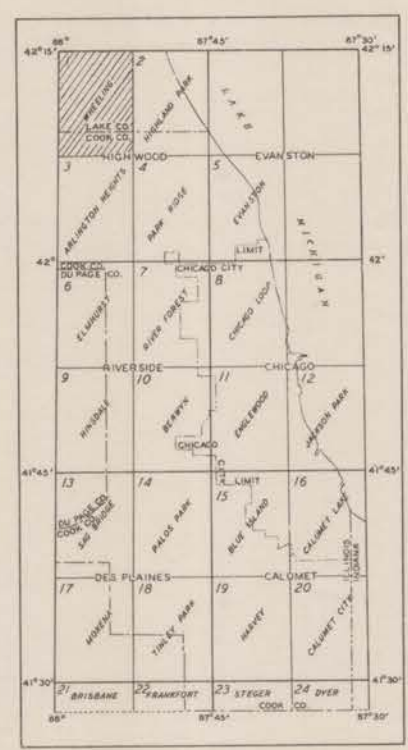


- LEGEND**
- Recent**
- Qm Made land (Artificial fills, spoil banks, dumps, etc.)
 - Qex Excavations in unconsolidated material
 - Qp Peat and muck deposits
 - Qf Basin fills of surface wash
 - Qal Alluvium (Silt, sand, and gravel deposited by present streams)
 - Qbs Glacial river bars (Low mounds and hillocks of gravel deposited by glacial streams)
 - Qva Valley train (Mainly well-sorted sand and gravel deposited by glacial streams in open valleys)
 - Qke Kames, eskers, and similar deposits (Coarsely sorted sand and gravel deposited in close relation to glacial ice)
 - Qb2 Lake border ground-moraine
 - Qb1 Lake border moraines:
 - h-Highland Park moraine
 - b-Bloomington moraine
 - d-Deerfield moraine
 - p-Park Ridge moraine
 - Qte Tinley ground-moraine
 - Qti Tinley moraine
 - Qv8 Valparaiso ground-moraine
- Wisconsin**
- Qv9 Definitely determined boundary between deposits
 - Qv8 Indefinite boundary between deposits
 - Qv7 Sand or gravel pit

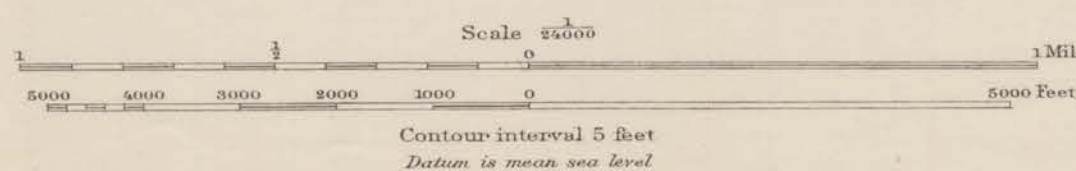


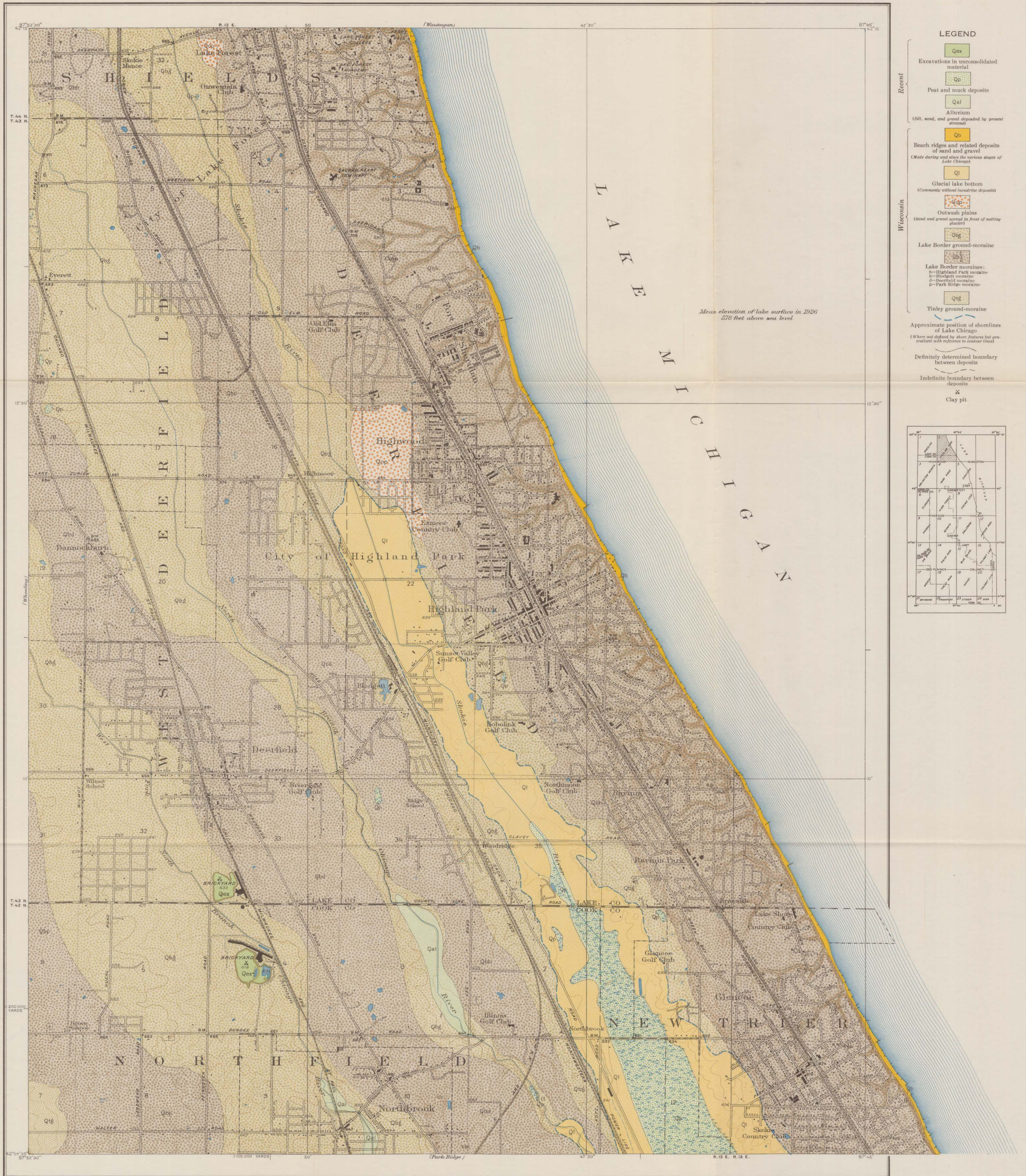
Topographic base surveyed in cooperation with the U. S. Geological Survey, 1926

SURFICIAL GEOLOGY OF THE WHEELING QUADRANGLE

BY
J HARLEN BRETZ

Geologically surveyed in 1930-1932. In connection with other quadrangles of the Chicago area.





Topographic base surveyed in cooperation
with the U. S. Geological Survey, 1926

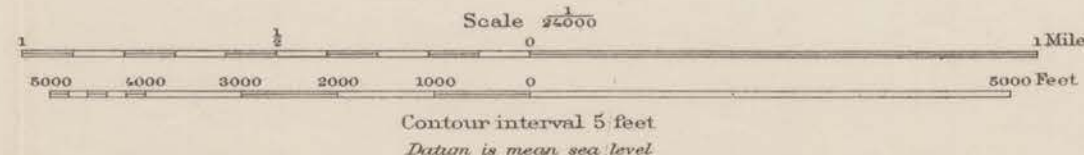
SURFICIAL GEOLOGY OF THE HIGHLAND PARK QUADRANGLE

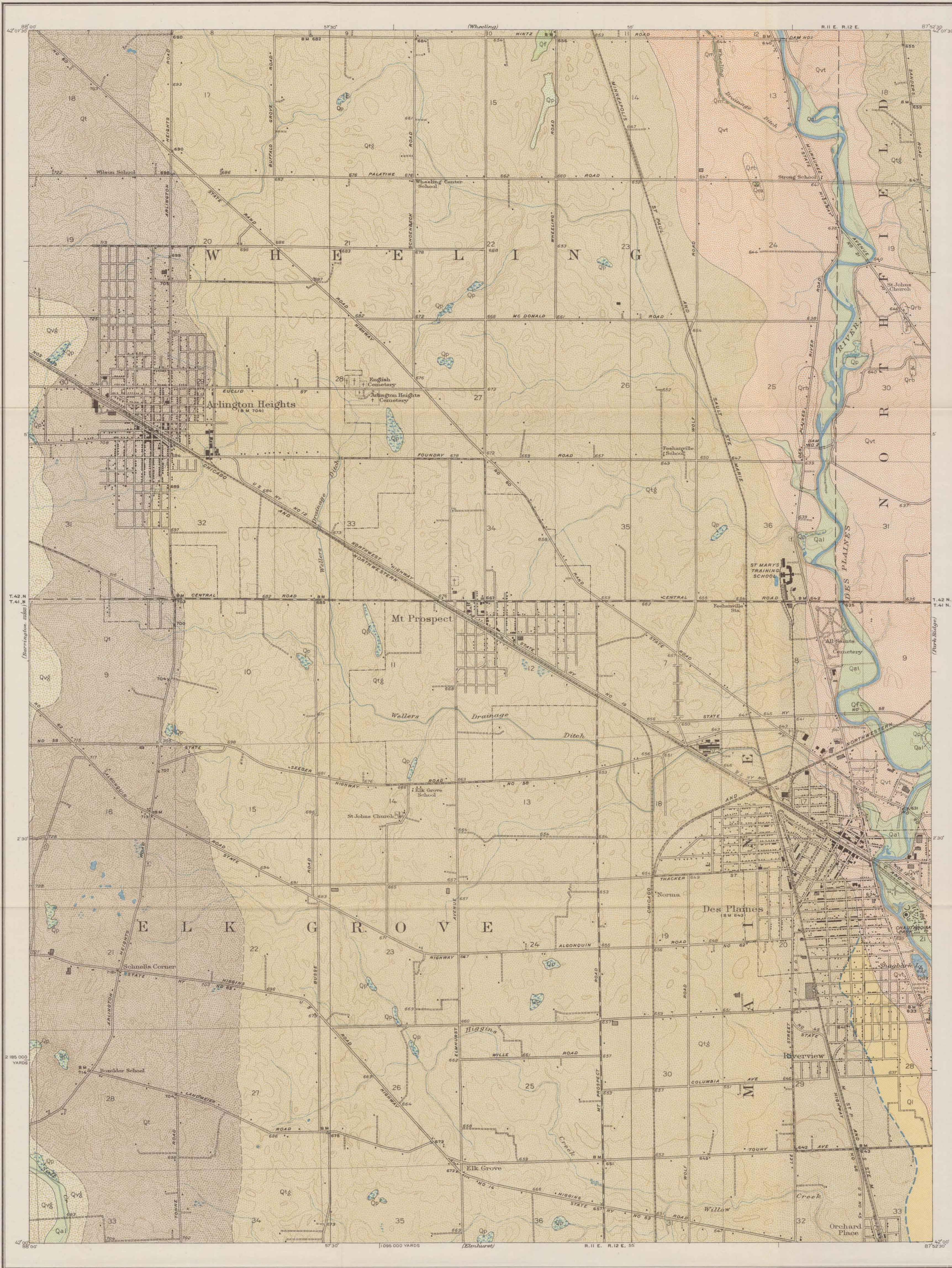
BY
J. HARLEN BRETZ

A. Horn & Co.

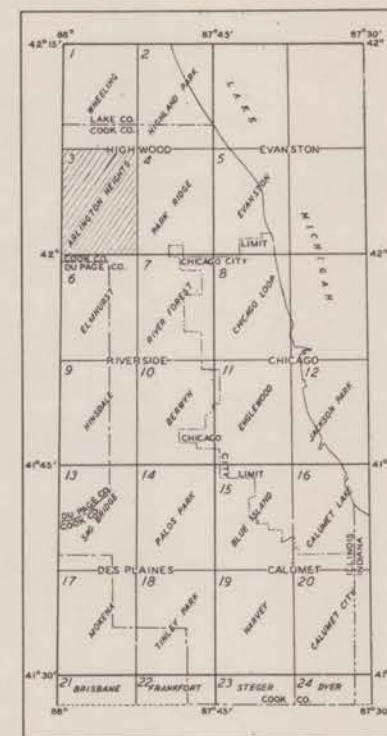
Geologically surveyed in 1930-1932.
In connection with other
quadrangles of the Chicago area.

APPROXIMATE MEAN
ELEVATION, FEET





- LEGEND**
- Recent**
- Qm Made land
(Artificial fills, spoil banks, dumps, etc.)
 - Qex Excavations in unconsolidated material
 - Qf Peat and muck deposits
 - Qal Basin fills of surface wash
 - Ql Alluvium
(Silt, sand, and gravel deposited by present streams)
 - Qrb Glacial lake bottom
(Commonly without lacustrine deposits)
 - Qvt Glacial river bars
(Low mounds and hillocks of gravel deposited by glacial streams)
 - Qts Valley-train
(Mainly well-sorted sand and gravel deposited by glacial streams in open valleys)
 - Qt Tinley ground-moraine
 - Qvg Tinley moraine
 - Valparaiso ground-moraine
- Wisconsin**
- Approximate position of shorelines of Lake Chicago
(Where not defined by shore features but generalized with reference to contour lines)
 - Definitely determined boundary between deposits
 - Indefinite boundary between deposits
 - Sand or gravel pit

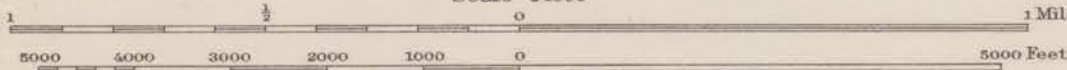


Topographic base surveyed in cooperation with the U. S. Geological Survey, 1925

SURFICIAL GEOLOGY OF THE ARLINGTON HEIGHTS QUADRANGLE

BY
J. HARLEN BRETZ

Scale 1:50,000

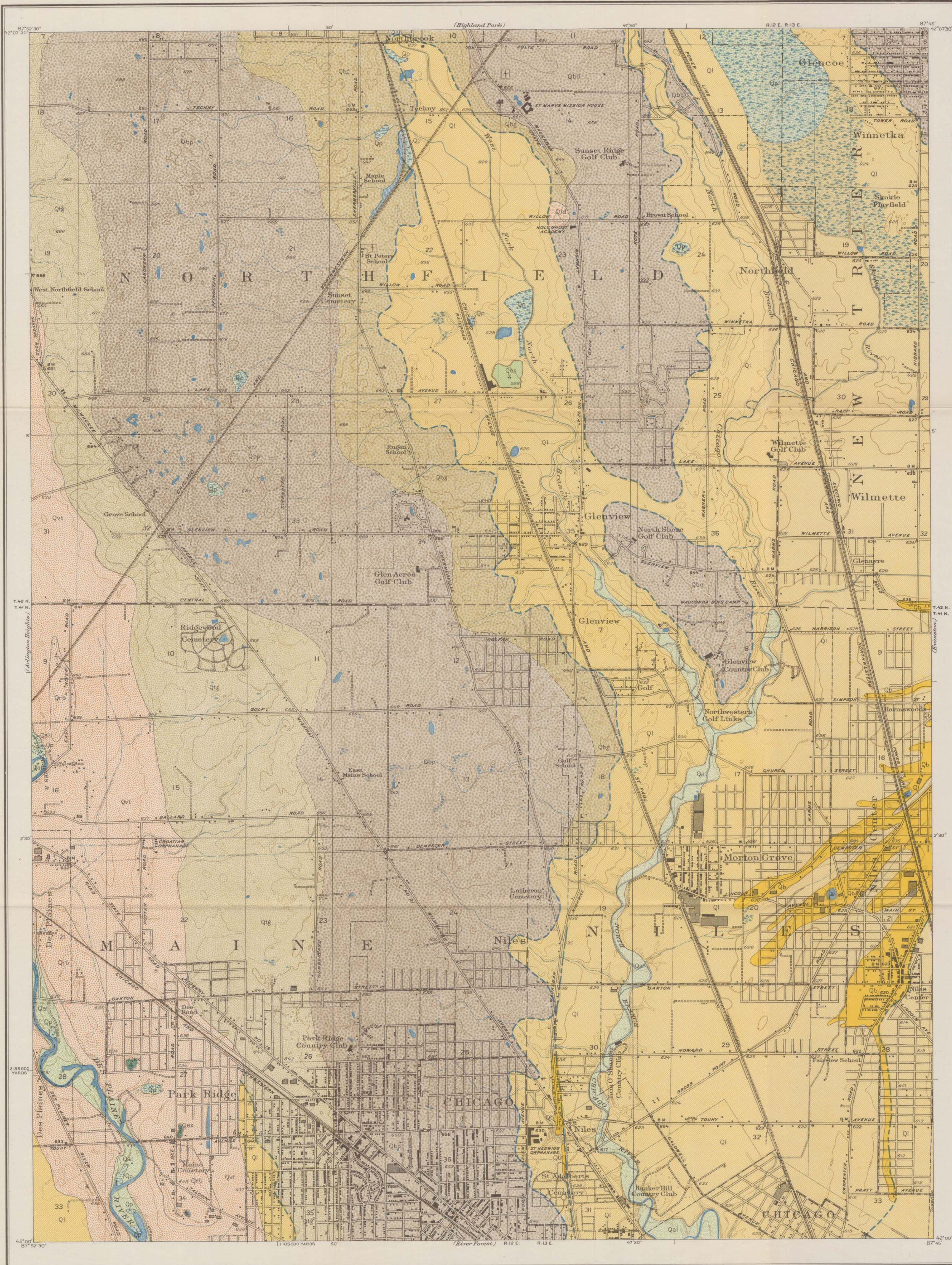


Contour interval 5 feet

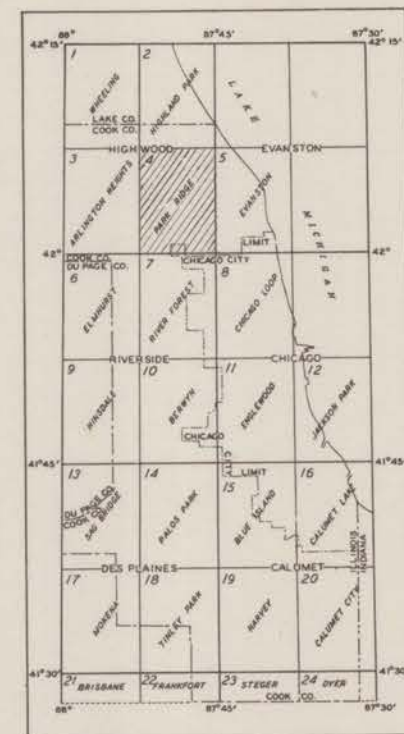
Datum is mean sea level

A. Hoen & Co.

Geologically surveyed in 1930-1932.
In connection with other quadrangles of the Chicago area.



- LEGEND**
- Recent**
- Excavations in unconsolidated material
 - Peat and muck deposits
 - Alluvium (Silt, sand, and gravel deposited by present stream)
 - Beach ridges and related deposits of sand and gravel (Made during the various stages of Lake Chicago)
 - Glacial lake bottom (Commonly without lacustrine deposits)
 - Deltaic deposits in glacial lakes (Chiefly silt and sand)
 - Glacial river bars (Low mounds and hillocks of gravel deposited by glacial stream)
 - Valley-train (Mainly well-sorted sand and gravel deposited by glacial stream in open valleys)
 - Lake border ground-moraine
 - Lake border moraines:
 - h-Highland Park moraine
 - b-Bloomington moraine
 - d-DuSable moraine
 - p-Park Ridge moraine
 - Tinley ground-moraine
- Wisconsin**
- Shoreline of Calumet stage of Lake Chicago (Where defined by beach deposits or wave-cut ridges)
 - Shoreline of Glenwood (oldest) stage of Lake Chicago (Where defined by beach deposits or wave-cut ridges)
 - Approximate position of shorelines of Lake Chicago (Where not defined by shore features but generalized with reference to contour lines)
 - Definitely determined boundary between deposits
 - Indefinite boundary between deposits
 - Sand or gravel pit
 - Clay pit



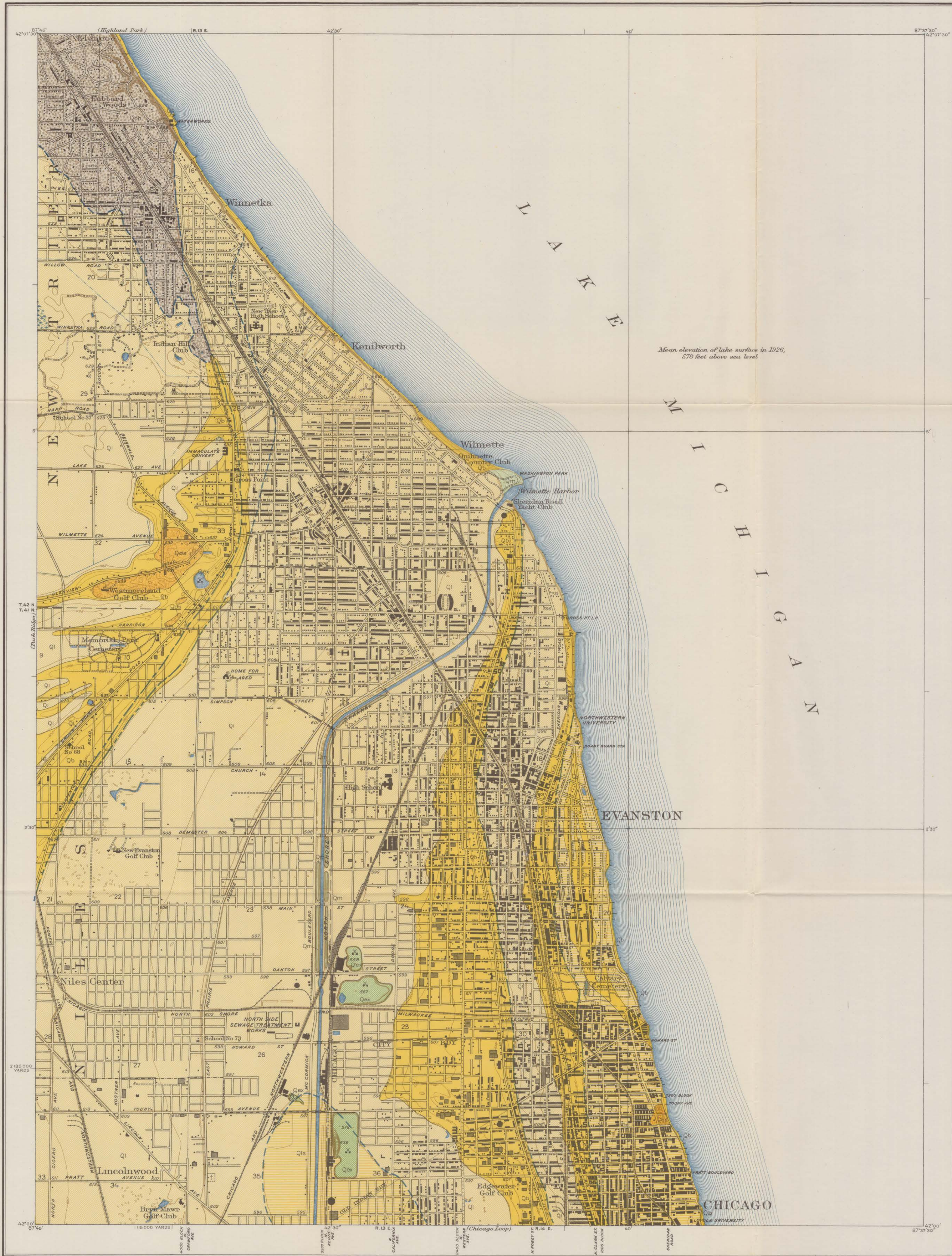
Topographic base surveyed in cooperation with the U. S. Geological Survey, 1926

SURFICIAL GEOLOGY OF THE PARK RIDGE QUADRANGLE

BY
J HARLEN BRETZ

Scale 1:25,000
6000 4000 2000 1000 0 5000 Feet
Contour interval 5 feet
Datum is mean sea level

Geologically surveyed in 1930-1932.
In connection with other quadrangles of the Chicago area.



- LEGEND**
- Recent**
- Qm Made land (Artificial fills, spoil banks, dumps, etc.)
 - Qex Excavations in unconsolidated material
 - Qds Dune sand (Mainly beach sand reworked by wind)
 - Qb Beach ridges and related deposits of sand and gravel (Made during and after the various stages of Lake Chicago)
 - Ql Glacial lake bottom (Commonly without lacustrine deposits)
 - Qls Glacial lake bottom (Covered by lacustrine silt and sand)
 - Qcl Lake border moraines: b-Highland Park moraine; c-Budgett moraine; d-Berfield moraine; e-Park Ridge moraine
 - Shoreline of Tolleston stage of Lake Chicago (Where defined by beach deposits or wave-cut cliffs)
 - Shoreline of Calumet stage of Lake Chicago (Where defined by beach deposits or wave-cut cliffs)
 - Shoreline of Glenwood (oldest) stage of Lake Chicago (Where defined by beach deposits or wave-cut cliffs)
 - Approximate position of shorelines of Lake Chicago (Where not defined by shore features but generalized with reference to contour lines)
 - Definitely determined boundary between deposits
 - Clay pit
- Wisconsin**

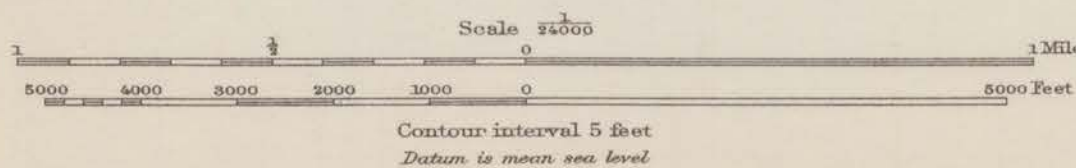


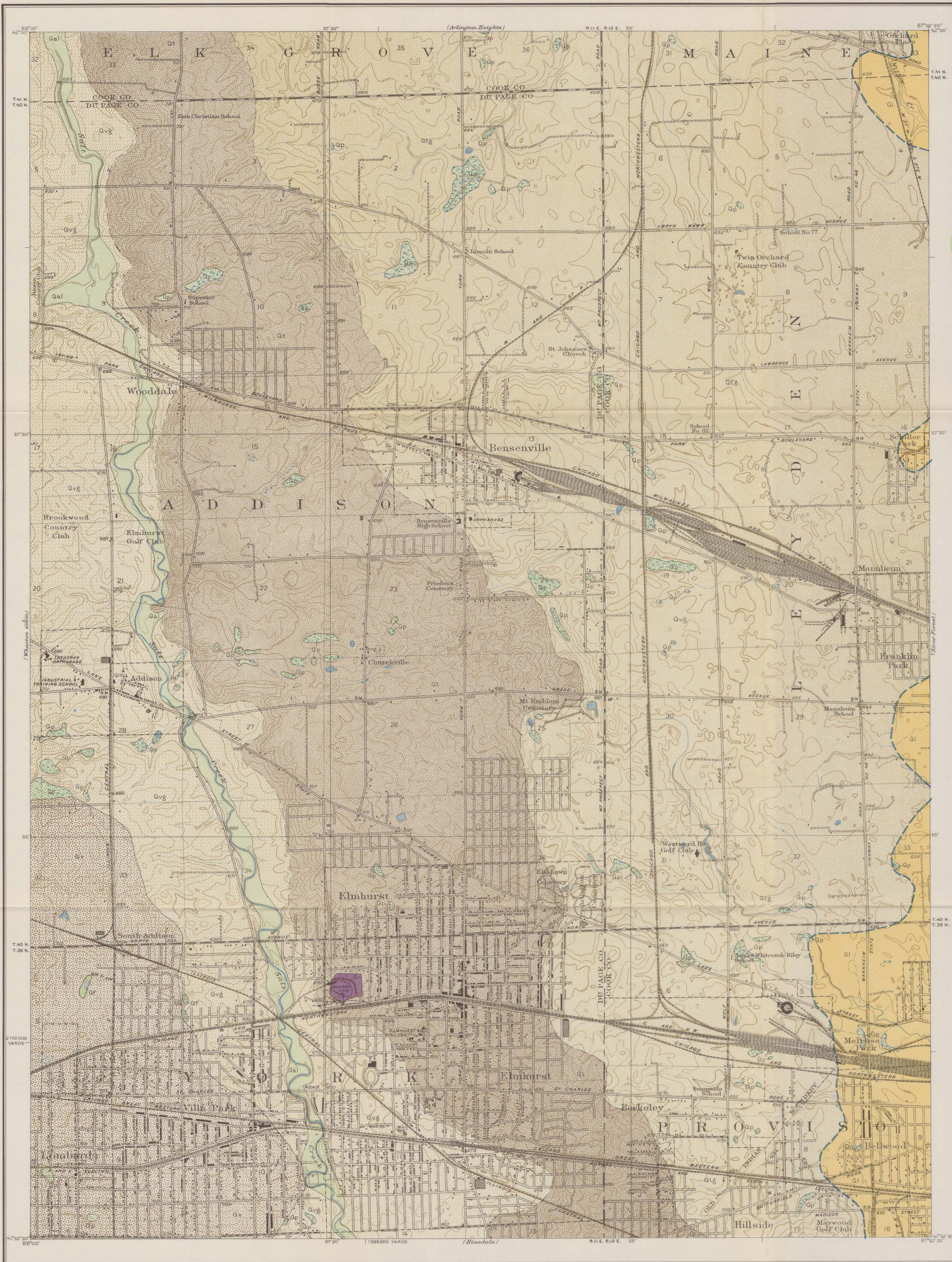
Topographic base surveyed in cooperation with the U. S. Geological Survey, 1926; 1937

SURFICIAL GEOLOGY OF THE EVANSTON QUADRANGLE
BY
J HARLEN BRETZ

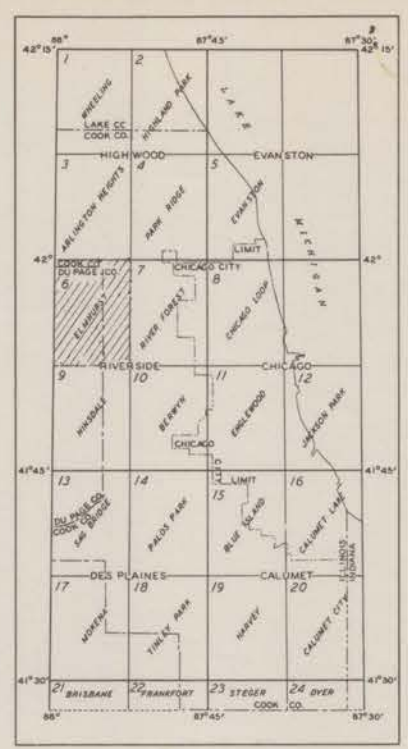
A. Hoen & Co.

Geologically surveyed in 1930-1932. In connection with other quadrangles of the Chicago area.





- LEGEND**
- Recent
 - Peat and muck deposits
 - Basin fills of surface wash
 - Alluvium (Silt, sand, and gravel deposited by present stream)
 - Glacial lake bottom (Commonly without lacustrine deposits)
 - Wisconsin
 - Tinley ground-moraine
 - Tinley moraine
 - Valparaiso ground-moraine
 - Valparaiso moraine
 - Illinoian
 - Niagara series of undifferentiated dolomitic formations, exposed
- Approximate position of shoreline of Lake Chicago (Where not defined by shore features but generalized with reference to contour lines)
- Definitely determined boundary between deposits
- Indefinite boundary between deposits
- Glacial striae, oriented in direction
- Rock quarry



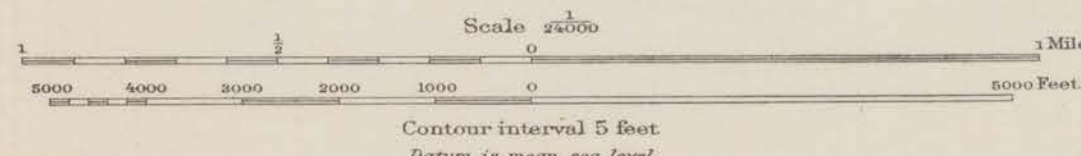
Topographic base surveyed in cooperation with the U. S. Geological Survey, 1926

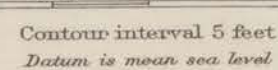
SURFICIAL GEOLOGY OF THE ELMHURST QUADRANGLE
BY
J HARLEN BRETZ

A. Hoen & Co.

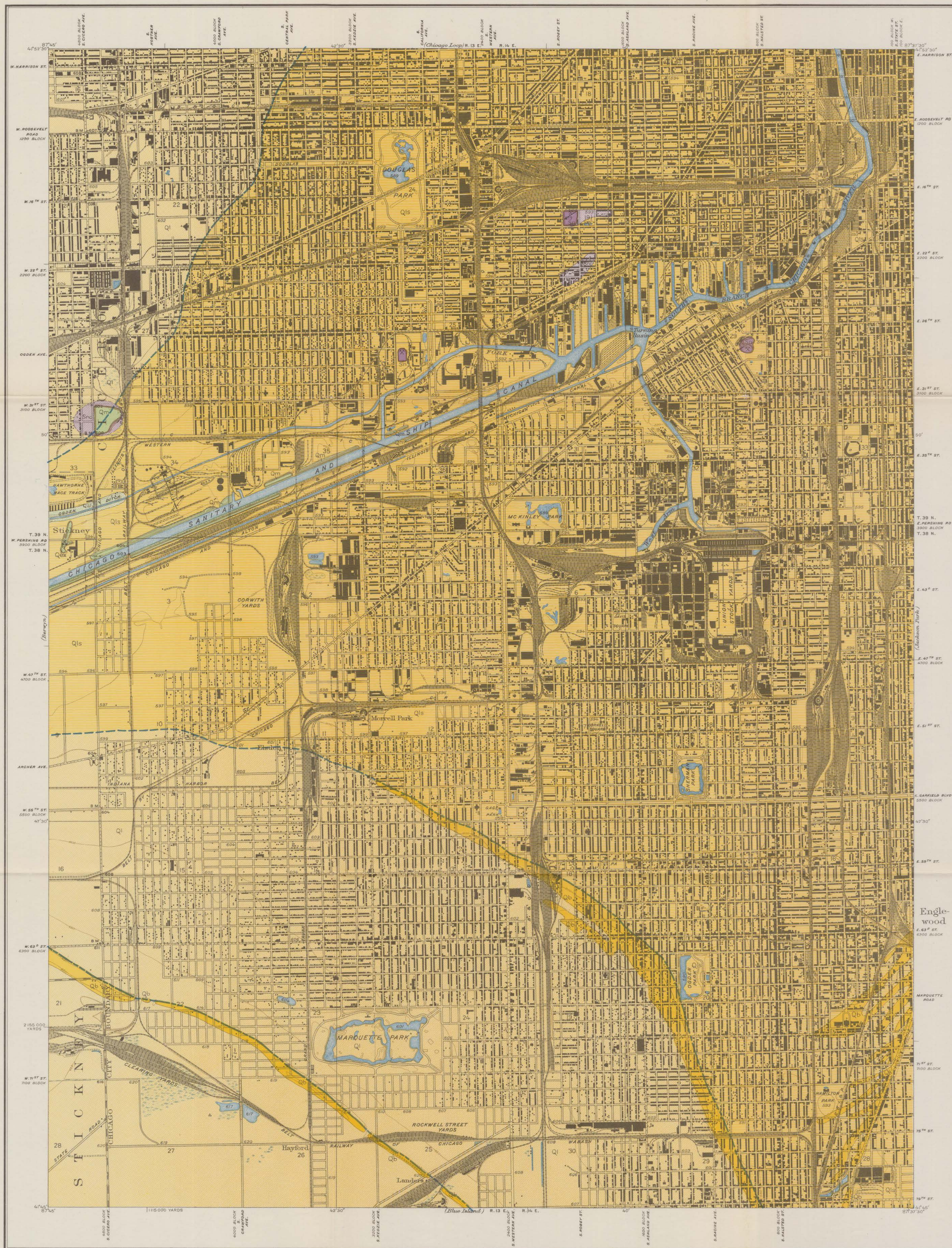
Geologically surveyed in 1930-1932.
In connection with other quadrangles of the Chicago area.

APPROXIMATE MEAN
DECLINATION, 1925





Geologically surveyed in 1930-1932.
In connection with other
quadrangles of the Chicago area.



- LEGEND**
- Recent**
- Qm Made land (Artificial fill, spoil banks, dumps, etc.)
 - Qex Excavations in unconsolidated material
 - Qal Alluvium (Silt, sand, and gravel deposited by recent stream)
 - Qb Beach ridges and related deposits of sand and gravel (Made during and since the various stages of Lake Chicago)
 - Ql Glacial lake bottom (Commonly without lacustrine deposits)
 - Qls Glacial lake bottom (Covered by lacustrine silt and sand)
 - Sn Niagaran series of undifferentiated dolomite formations, exposed
 - Snc Niagaran formations, thinly covered
 - Shoreline of Tolleston stage of Lake Chicago (Where defined by beach deposits or wave-cut cliffs)
 - Shoreline of Calumet stage of Lake Chicago (Where defined by beach deposits or wave-cut cliffs)
 - Approximate position of shorelines of Lake Chicago (Where not defined by shore features but generalized with reference to contour lines)
 - Definitely determined boundary between deposits
 - Indefinite boundary between deposits
 - Boundaries between deposits determined in 1896-98, but now largely or completely destroyed or obscured. (H. C. Alden, U. S. Geol. Survey Geol. Atlas, Chicago, July 1, 1901, 1902)
 - Glacial striae, oriented in direction
 - Rock quarry
 - Clay pit
- Wisconsin**
- Silurian**

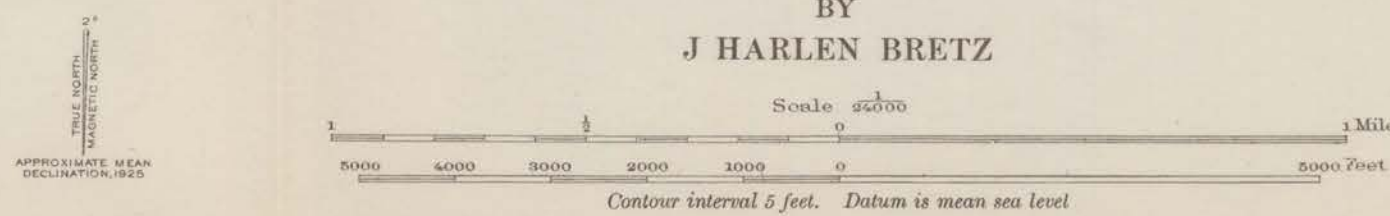


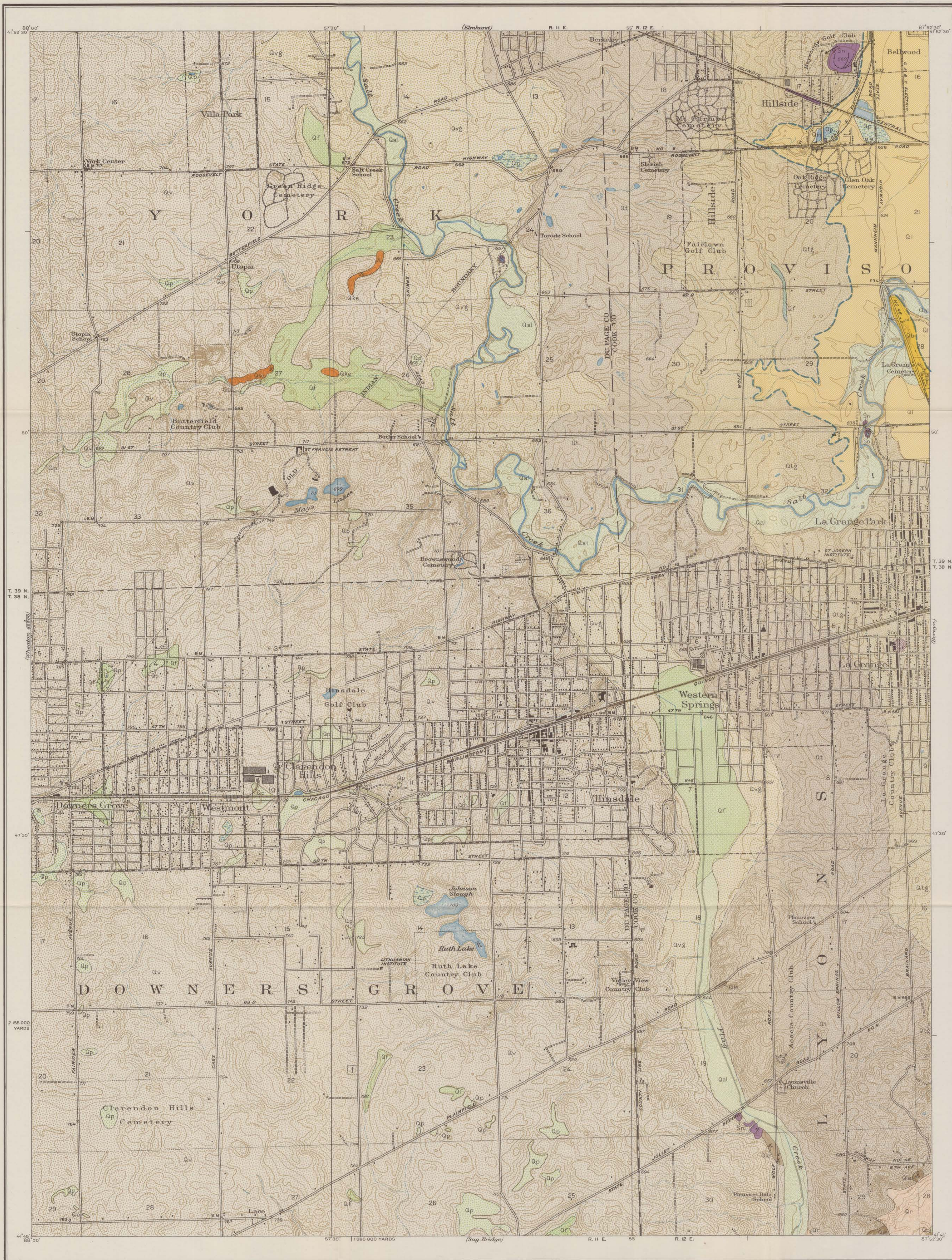
Topographic base surveyed in cooperation with the U. S. Geological Survey, 1926

SURFICIAL GEOLOGY OF THE ENGLEWOOD QUADRANGLE
BY
J HARLEN BRETZ

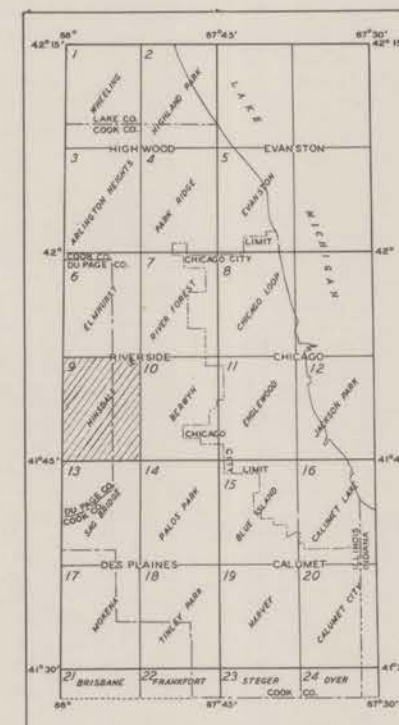
A. Hoan & Co.

Geologically surveyed in 1930-1932. In connection with other quadrangles of the Chicago area.





- LEGEND**
- Recent**
- Qm Made land (Artificial fills, spoil banks, dumps, etc.)
 - Qp Peat and muck deposits
 - Qf Basin fills of surface wash
 - Qal Alluvium (Silt, sand, and gravel deposited by present streams)
 - Qb Beach ridges and related deposits of sand and gravel (Made during and since the various stages of Lake Chicago)
 - Ql Glacial lake bottom (Commonly without lacustrine deposits)
 - Qr Glacial river bottom (Chiefly erosional, with some residual gravel)
 - Qke Kames, eskers, and similar deposits (Poorly sorted sand and gravel deposited in close relation to glacial ice)
 - Qtg Tinley ground-moraine
 - Qt Tinley moraine
 - Qvg Valparaiso ground-moraine
 - Qv Valparaiso moraine
 - Qle Lemont drift
 - Sn Niagara series of undifferentiated dolomitic formations, exposed
 - Snc Niagara formations, thinly covered
- Wisconsin**
- Shoreline of Glenwood (oldest stage of Lake Chicago) (Where defined by beach deposits or wave-cut cliffs)
 - Approximate position of shorelines of Lake Chicago (Where not defined by shore features but generalized with reference to contour lines)
 - Definitely determined boundary between deposits
 - Indefinite boundary between deposits
 - Glacial striae, oriented in direction
 - Rock quarry
 - Sand or gravel pit
- Silurian**

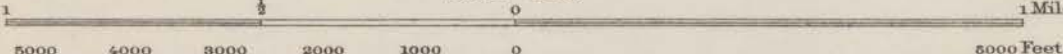


Topographic base surveyed in cooperation with the U. S. Geological Survey, 1925

SURFICIAL GEOLOGY OF THE HINSDALE QUADRANGLE

BY
J HARLEN BRETZ

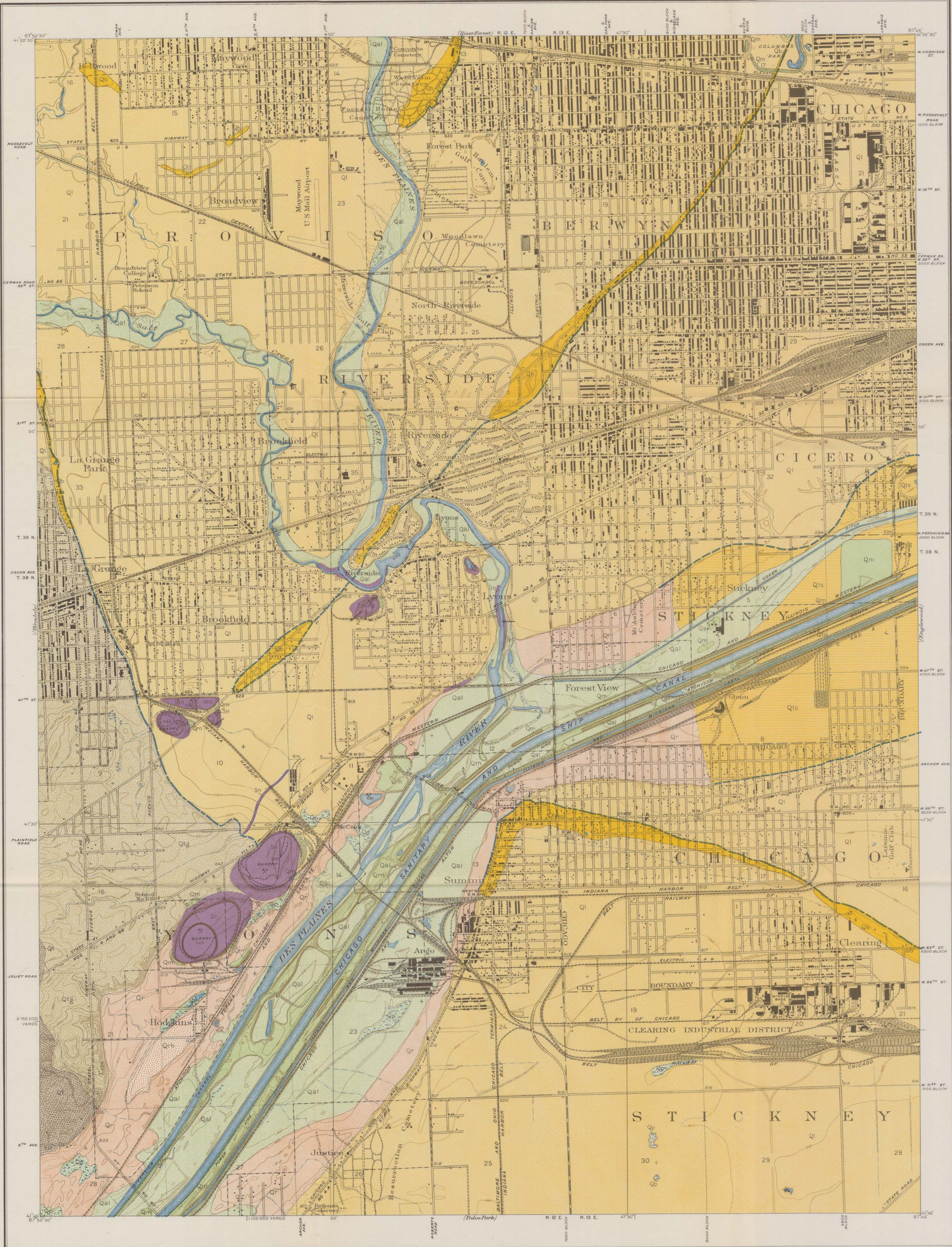
Scale 1:50,000



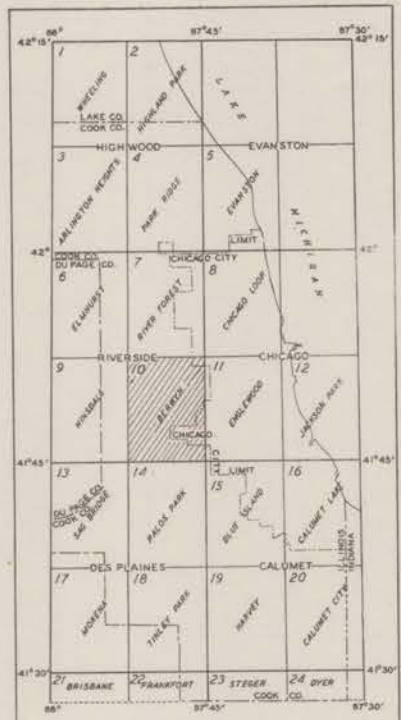
Contour interval 5 feet

Datum is mean sea level

Geologically surveyed in 1930-1932. In connection with other quadrangles of the Chicago area.



- LEGEND**
- Recent**
- Qm Made land (Artificial fills, spoil banks, dumps, etc.)
 - Qa Peat and muck deposits
 - Qex Excavations in unconsolidated material
 - Qal Alluvium (Silt, sand, and gravel deposited by present stream)
 - Qb Beach ridges and related deposits of sand and gravel (Made during the various stages of Lake Chicago)
 - Ql Glacial lake bottom (Commonly without lacustrine deposits)
 - Qls Glacial lake bottom (Covered by lacustrine silt and sand)
 - Qr Glacial river bottom (Highly eroded, with some residual gravel)
 - Qrs Glacial river bars (Low mounds and hillocks of gravel deposited by glacial streams)
 - Qm Tinley ground-moraine
 - Qm Tinley moraine
 - Qm Niagara series of undifferentiated dolomitic formations, exposed
- Shoreline of Calumet stage of Lake Chicago**
(Where defined by beach deposits or wave-cut cliffs)
- Shoreline of Glenwood (oldest) stage of Lake Chicago**
(Where defined by beach deposits or wave-cut cliffs)
- Approximate position of shorelines of Lake Chicago**
(Where not defined by shore features but generalized with reference to contour lines)
- Definitely determined boundary between deposits**
- Indefinite boundary between deposits**
- Glacial striae, oriented in direction**
- Rock quarry**
- Clay pit**

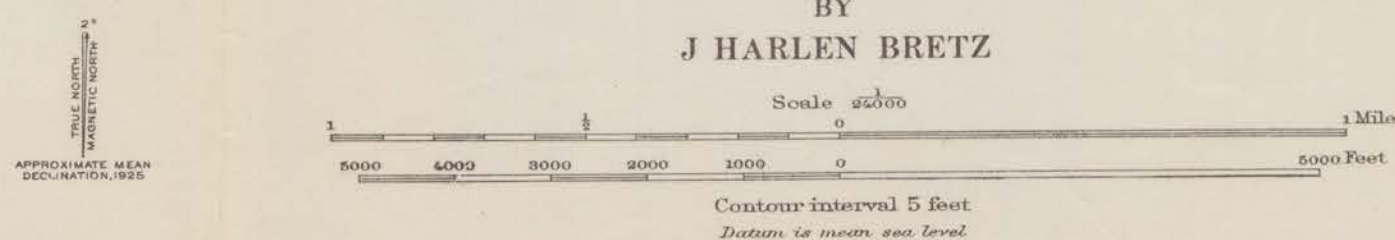


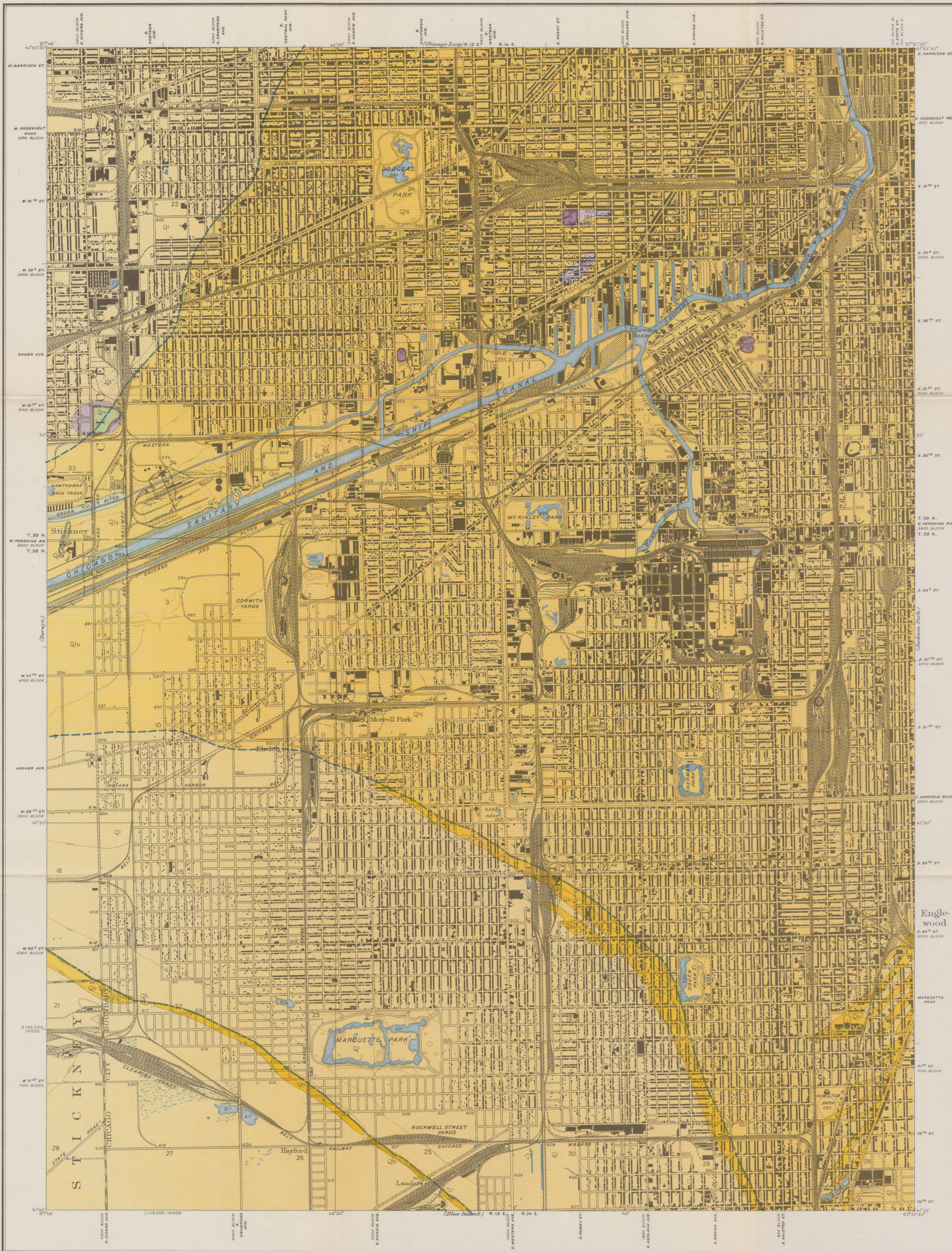
Topographic base surveyed in cooperation with the U. S. Geological Survey, 1925

SURFICIAL GEOLOGY OF THE BERWYN QUADRANGLE
BY
J HARLEN BRETZ

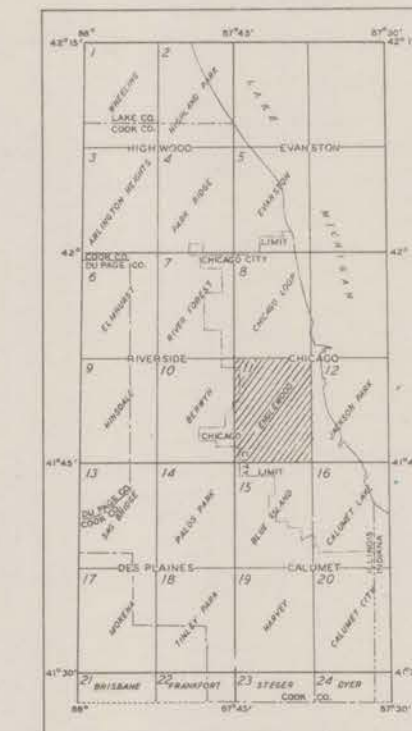
A. Hoen & Co.

Geologically surveyed in 1930-1932.
In connection with other quadrangles of the Chicago area.





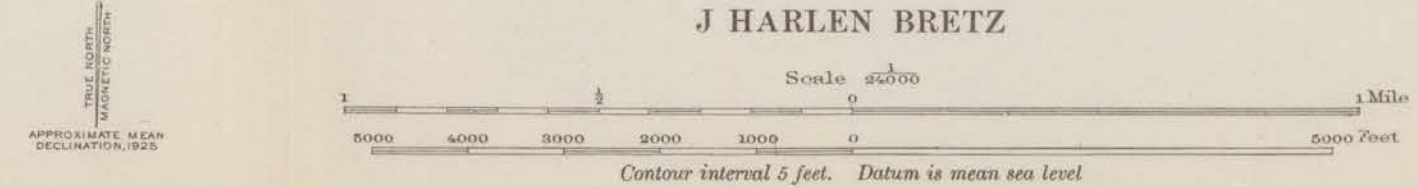
- LEGEND**
- Recent**
- Qm Made land (Artificial fill, spoil banks, dumps, etc.)
 - Qex Excavations in unconsolidated material
 - Qal Alluvium (Silt, sand, and gravel deposited by present streams)
 - Qb Beach ridges and related deposits of sand and gravel (Made during and since the various stages of Lake Chicago)
 - Q1 Glacial lake bottom (Commonly without lacustrine deposits)
 - Q1s Glacial lake bottom (Covered by lacustrine silt and sand)
 - Sn Niagara series of undifferentiated dolomitic formations, exposed
 - Ni Niagara formations, thinly covered
- Wisconsin**
- Shoreline of Tolleston stage of Lake Chicago (Where defined by beach deposits or wave-cut cliffs)
 - Shoreline of Calumet stage of Lake Chicago (Where defined by beach deposits or wave-cut cliffs)
 - Approximate position of shorelines of Lake Chicago (Where not defined by shore features but generalized with reference to contour lines)
 - Definitely determined boundary between deposits
 - Indefinite boundary between deposits
- Silurian**
- Boundaries between deposits determined in 1896-98, but now largely or completely destroyed or obscured. (W. C. Alden, U. S. Geol. Survey, *Ann.*, Chicago, Ill., 1907)
 - Glacial striae, oriented in direction
 - Rock quarry
 - Clay pit

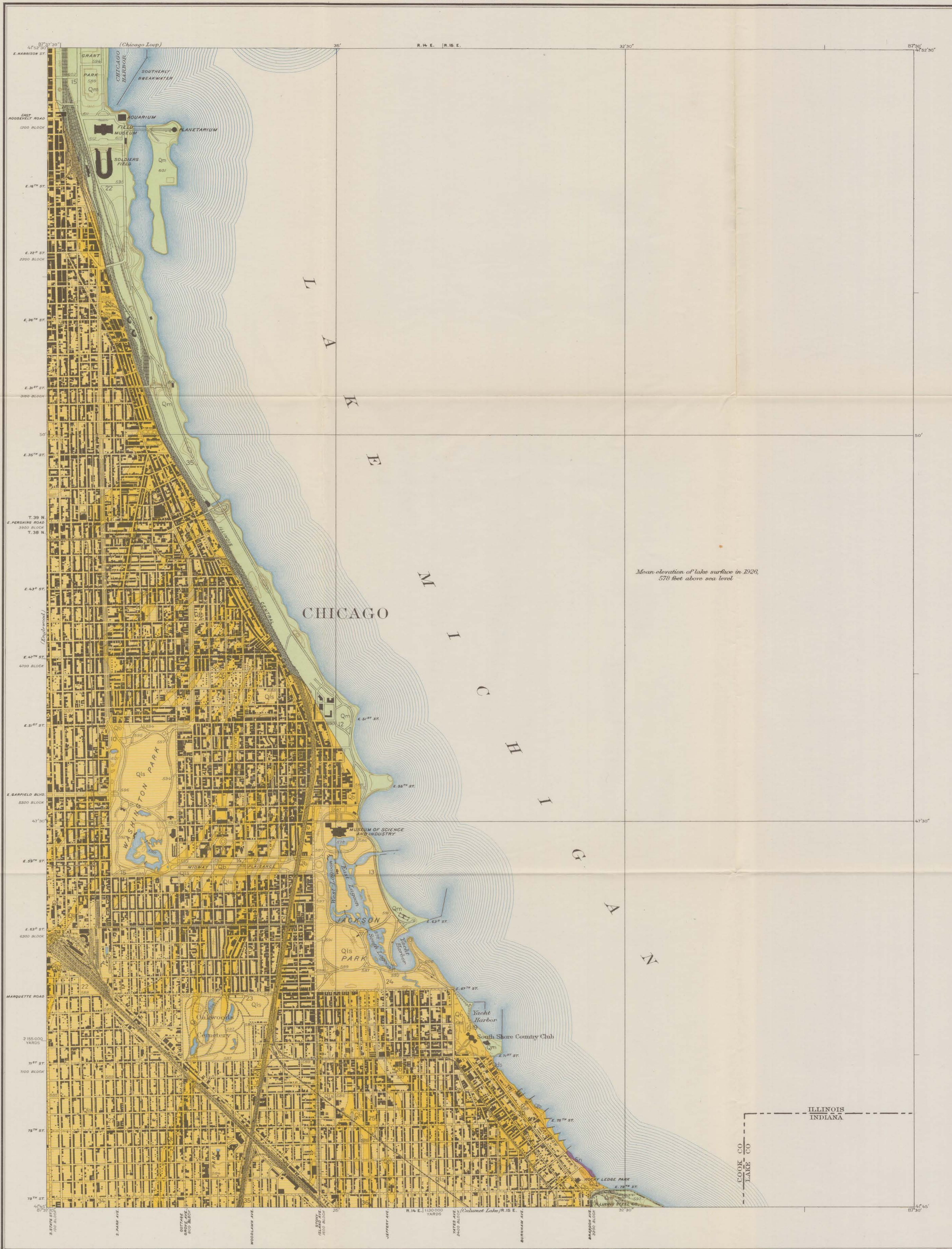


Topographic base surveyed in cooperation with the U. S. Geological Survey, 1926

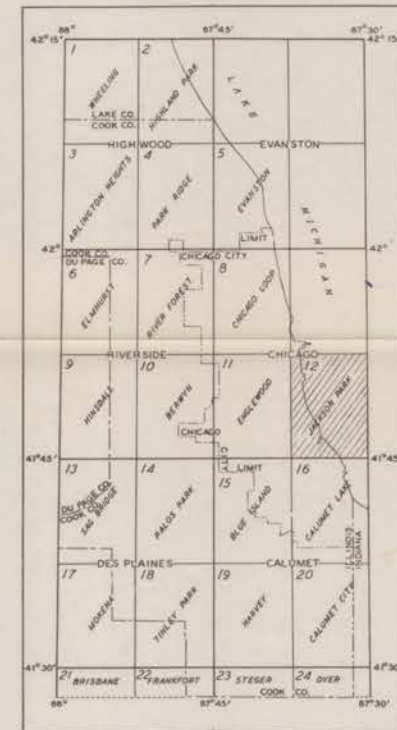
SURFICIAL GEOLOGY OF THE ENGLEWOOD QUADRANGLE
BY
J HARLEN BRETZ

Geologically surveyed in 1930-1932. In connection with other quadrangles of the Chicago area.





- LEGEND**
- Recent**
- Qm Made land
(Artificial fills, spoil banks, dumps, etc.)
 - Qds Dune sand
(Mainly beach sand reworked by wind)
 - Qb Beach ridges and related deposits
of sand and gravel
(Made during and since the various stages of
Lake Chicago)
 - Qls Glacial lake bottom
(Covered by lacustrine silt and sand)
- Wisconsin**
- Sn Niagara series of undifferentiated
dolomitic formations, exposed
- Definitely determined boundary
between deposits
- Boundaries between deposits deter-
mined in 1896-98, but now largely
or completely destroyed or ob-
scured.
(W. C. Alden, U. S. Geol. Survey Geol. Atlas,
Chicago folio [No. 81], 1902)



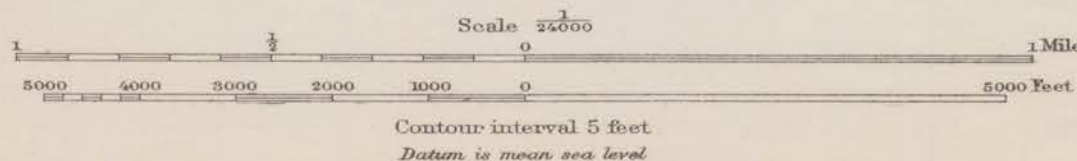
Topographic base surveyed in cooperation
with the U. S. Geological Survey, 1926; 1936

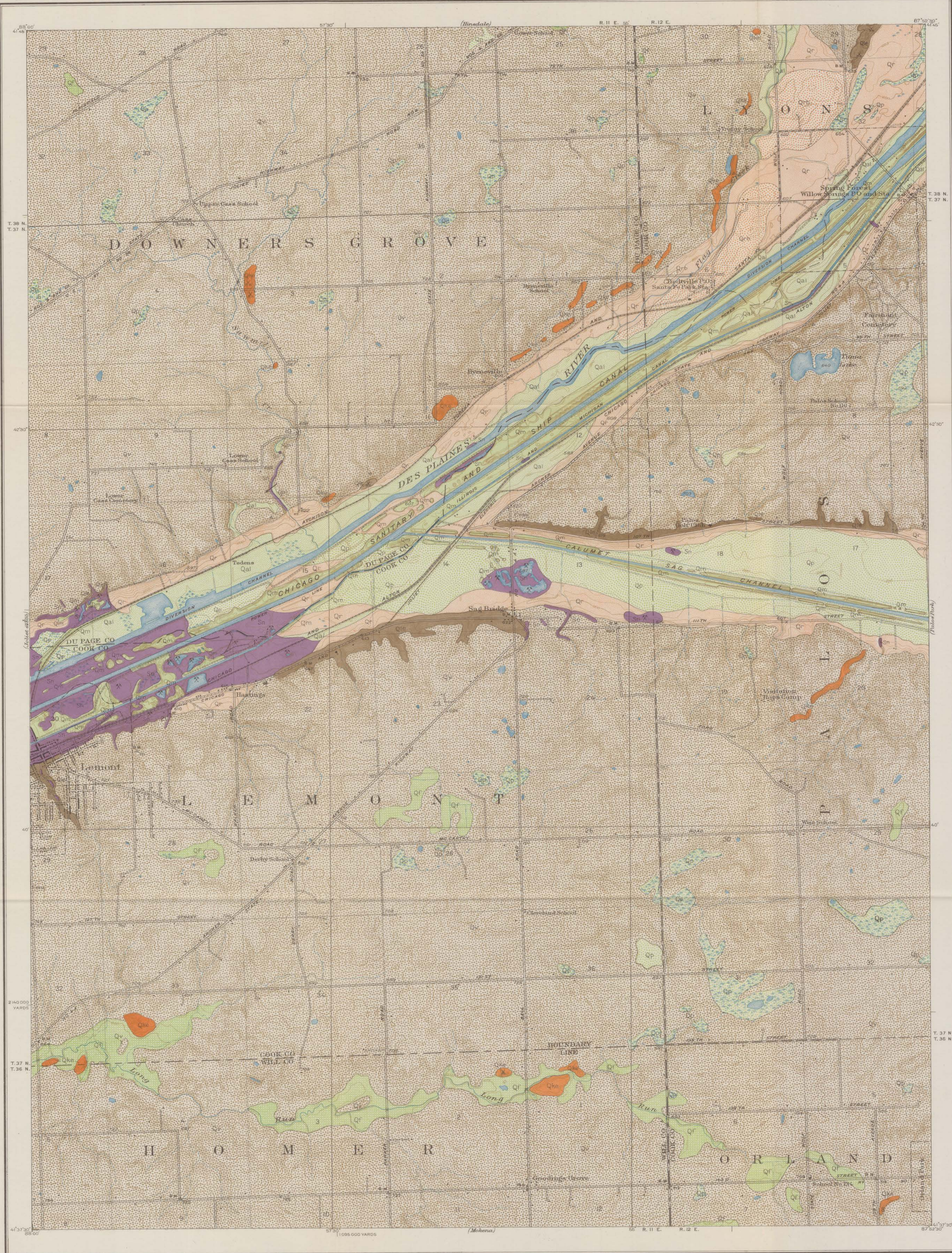
SURFICIAL GEOLOGY OF THE JACKSON PARK QUADRANGLE

BY
J HARLEN BRETZ

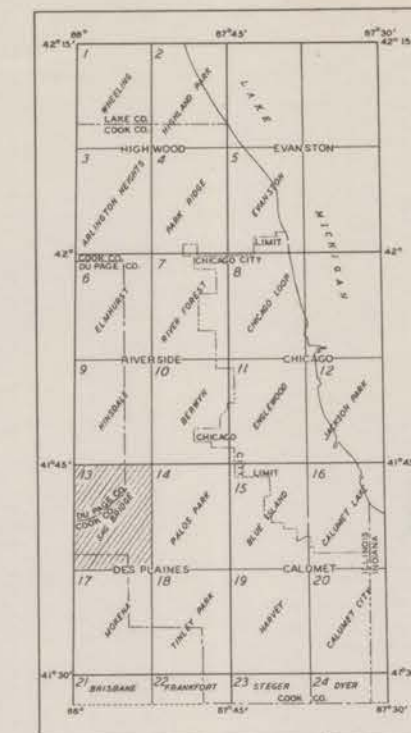
Geologically surveyed in 1930-1932
In connection with other
quadrangles of the Chicago area.

APPROXIMATE MEAN
DECLINATION, 1926





- LEGEND**
- Recent**
- Qm Made land (Artificial fills, spoil banks, dumps, etc.)
 - Qp Peat and muck deposits
 - Qr Basin fills of surface wash
 - Qal Alluvium (Silt, sand, and gravel deposited by present stream)
 - Qr Glacial river bottom (Chiefly erosional, with some residual gravel)
 - Qr Glacial river bars (Low mounds and hillocks of gravel deposited by glacial streams)
 - Qle Kames, eskers, and similar deposits (Poorly sorted sand and gravel deposited in close relation to glacial ice)
 - Ql Tinley moraine
 - Qv Valparaiso moraine
 - Qle Lemont drift
 - Sn Niagara series of undifferentiated dolomitic formations, exposed
- Wisconsin**
- Definitely determined boundary between deposits
 - Glacial striae, oriented in direction
 - Rock quarry
 - Sand or gravel pit
- Illinois**

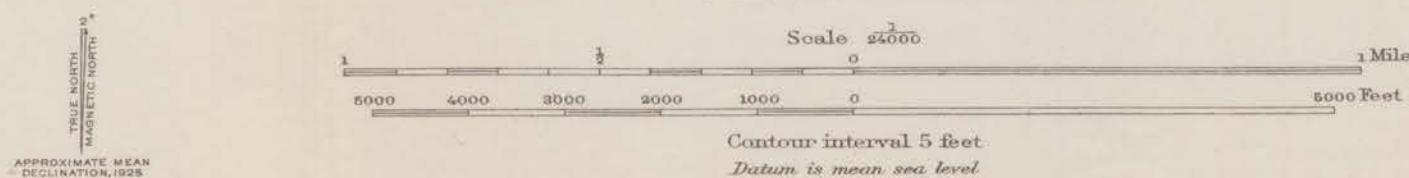


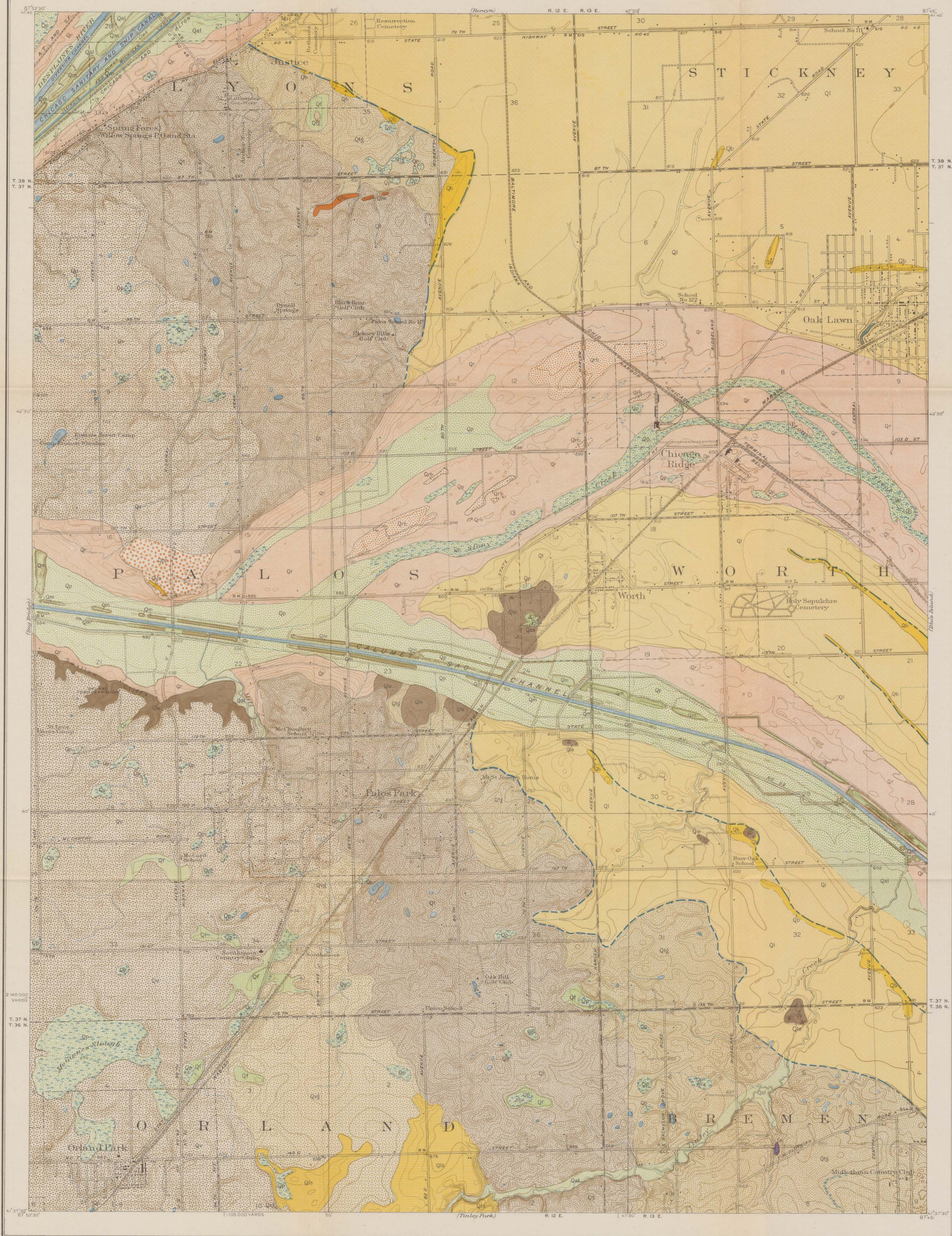
Topographic base surveyed in cooperation with the U. S. Geological Survey, 1925

SURFICIAL GEOLOGY OF THE SAG BRIDGE QUADRANGLE
BY
J. HARLEN BRETZ

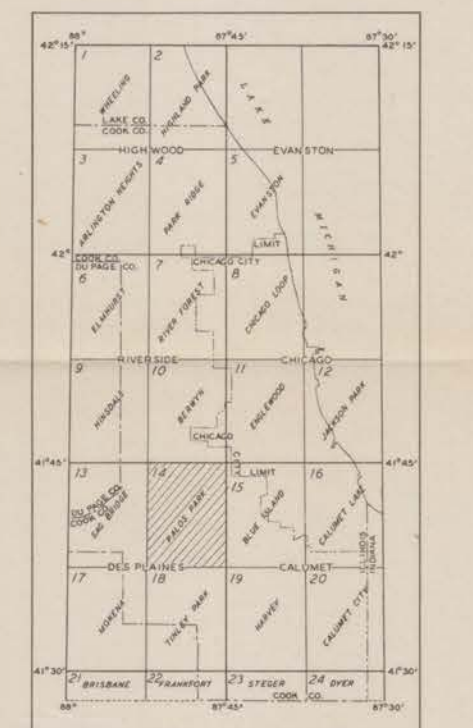
A. HOEN & CO.

Geologically surveyed in 1930-1932.
In connection with other quadrangles of the Chicago area





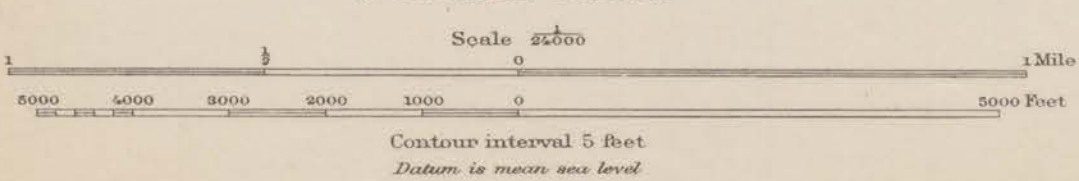
- LEGEND**
- Recent**
- Qm Made land
(Artificial fills, spoil banks, dumps, etc.)
 - Qex Excavations in unconsolidated material
 - Qp Peat and muck deposits
 - Qf Basin fills of surface wash
 - Qal Alluvium
(Silt, sand, and gravel deposited by present streams)
 - Qds Dune sand
(Mainly beach sand reworked by wind)
 - Qb Beach ridges and related deposits of sand and gravel
(Made during and since the various stages of Lake Chicago)
 - Ql Glacial lake bottom
(Commonly without lacustrine deposits)
 - Qls Glacial lake bottom
(Covered by lacustrine silt and sand)
 - Qr Glacial river bottom
(Chiefly erosional, with some residual gravel)
 - Qrb Glacial river bars
(Low mounds and ridges of gravel deposited by glacial streams)
 - Qes Outwash plains
(Sand and gravel spread in front of melting glaciers)
 - Qke Kames, eskers, and similar deposits
(Poorly sorted sand and gravel deposited in close relation to glacial ice)
 - Qla Tinley ground-moraine
 - Qli Tinley moraine
 - Qva Valparaiso ground-moraine
 - Qvm Valparaiso moraine
 - Qld Lemont drift
 - Qs Niagara series of undifferentiated dolomitic formations, exposed
- Wisconsin**
- Shoreline of Calumet stage of Lake Chicago
(Where defined by beach deposits or wave-cut cliffs)
 - Shoreline of Glenwood (oldest) stage of Lake Chicago
(Where defined by beach deposits or wave-cut cliffs)
 - Approximate position of shorelines of Lake Chicago
(Where not defined by shore features but generalized with reference to contour lines)
 - Definitely determined boundary between deposits
 - Indefinite boundary between deposits
 - Rock quarry
 - Sand or gravel pit
- Sturion**



Topographic base surveyed in cooperation with the U. S. Geological Survey, 1925.

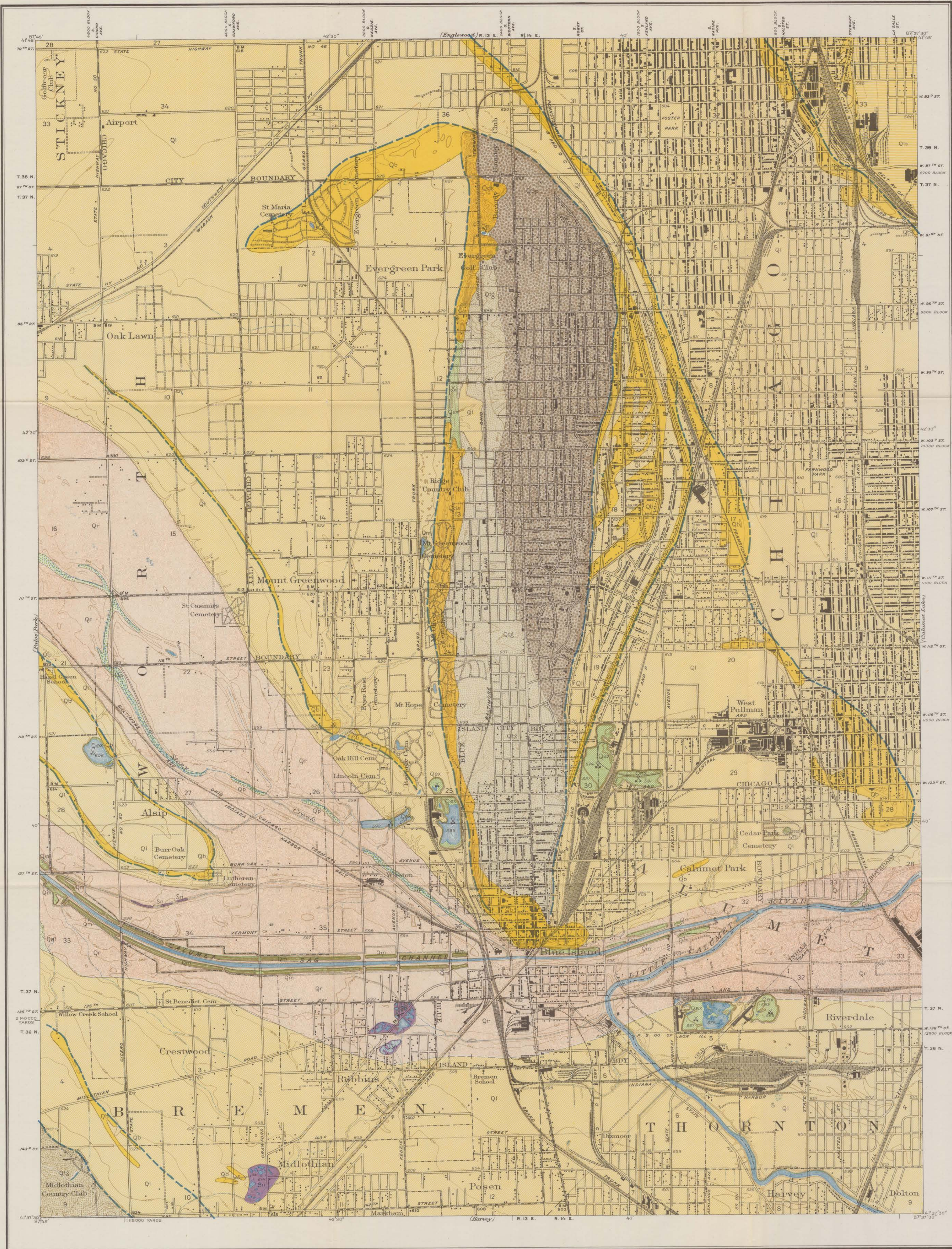
APPROXIMATE MEAN DEPRESSION, 1925

SURFICIAL GEOLOGY OF THE PALOS PARK QUADRANGLE
BY
J. HARLEN BRETZ



A. HOBBS & CO.

Geologically surveyed in 1930-1932.
In connection with other quadrangles of the Chicago area.



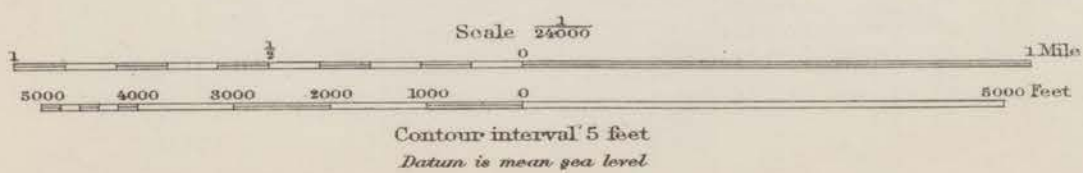
- LEGEND**
- Recent**
- Qm Made land (Artificial fill, spoil banks, dumps, etc.)
 - Qex Excavations in unconsolidated material
 - Qal Peat and mud deposits
 - Qd Aluvium (Silt, sand, and gravel deposited by present stream)
 - Qds Dune sand (Mainly beach sand reworked by wind)
 - Qb Beach ridges and related deposits of sand and gravel (Made during and since the various stages of Lake Chicago)
 - Ql Glacial lake bottom (Commonly without lacustrine deposits)
 - Qls Glacial lake bottom (Covered by lacustrine silt and sand)
 - Qr Glacial river bottom (Chiefly erosional, with some residual gravel)
 - Lake Border moraines:
 - h—Highland Park moraine
 - b—Bridgman moraine
 - s—Southwest moraine
 - p—Park Ridge moraine
 - Qlg Tinsley ground-moraine
 - Sn Niagara series of undifferentiated dolomitic formations, exposed
- Wisconsin**
- Shoreline of Tolleston stage of Lake Chicago (Where defined by beach deposits or wave-cut ridges)
 - Shoreline of Calumet stage of Lake Chicago (Where defined by beach deposits or wave-cut ridges)
 - Shoreline of Glenwood (oldest) stage of Lake Chicago (Where defined by beach deposits or wave-cut ridges)
 - Approximate position of shorelines of Lake Chicago (Where not defined by shore features but generalized with reference to contour lines)
 - Definitely determined boundary between deposits
 - Indefinite boundary between deposits
- Silurian**
- Boundaries between deposits determined in 1896-98, but now largely or completely destroyed or obscured (W. C. Alden, U. S. Geol. Survey Geol. Atlas, Chicago folio (No. 81), 1902)
 - Glacial striae, oriented in direction
 - Sand or gravel pit
 - Clay pit



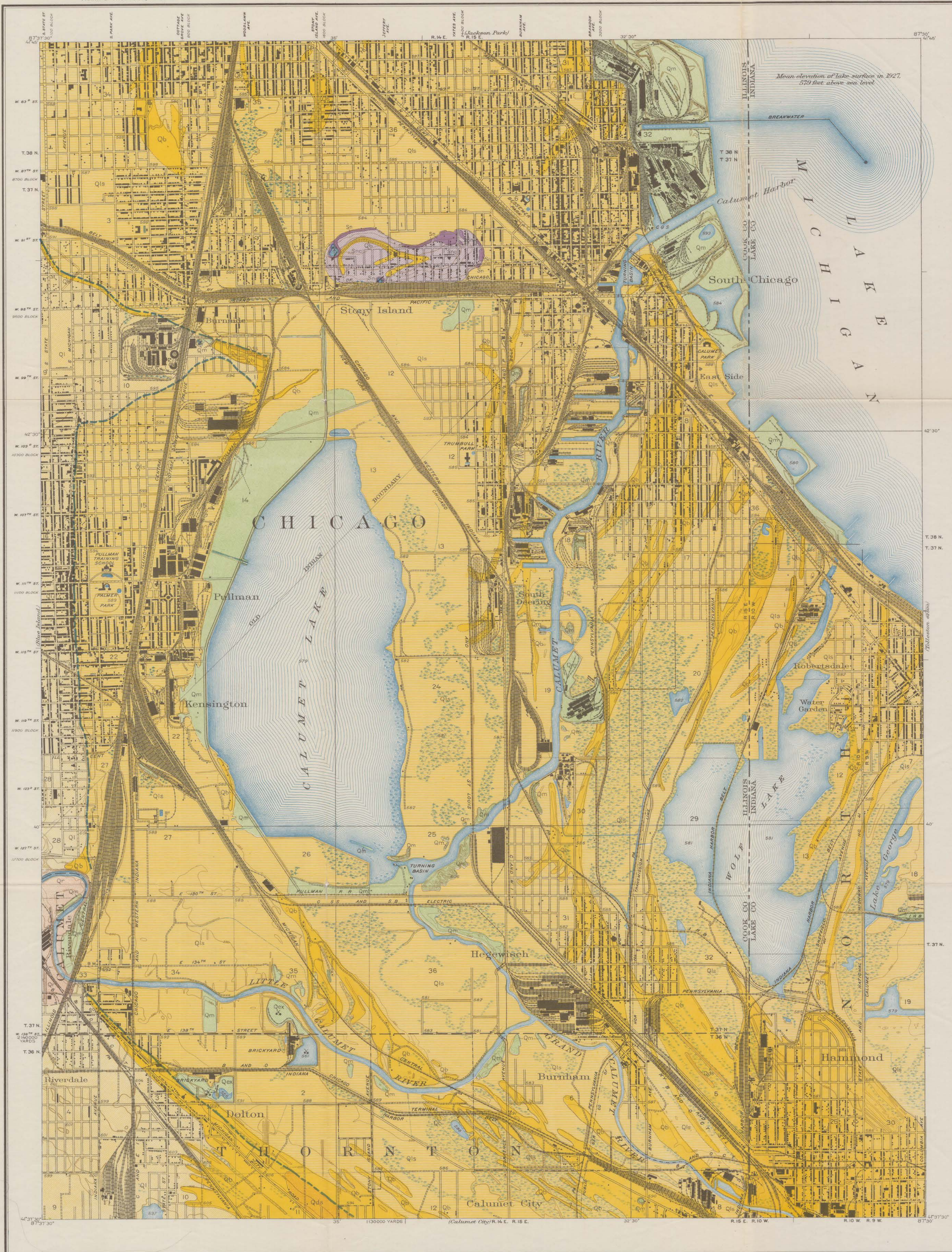
Topographic base surveyed in cooperation
with the U. S. Geological Survey, 1927

SURFICIAL GEOLOGY OF THE BLUE ISLAND QUADRANGLE

BY
J. HARLEN BRETZ



Geologically surveyed in 1930-1932
in connection with other
quadrangles of the Chicago area.



LEGEND

Recent

- Qm Made land (Artificial fill, spoil banks, dumps, etc.)
- Qex Excavations in unconsolidated material
- Qds Dune sand (Mainly beach sand resorted by wind)
- Qb Beach ridges and related deposits of sand and gravel (Made during and since the various stages of Lake Chicago)
- Ql Glacial lake bottom (Commonly without lacustrine deposits)
- Qls Glacial lake bottom (Covered by lacustrine silt and sand)
- Qr Glacial river bottom (Chiefly eroded, with some residual gravel)
- Sn Niagara series of undifferentiated dolomitic formations, exposed
- Sns Niagara formations, thinly covered

Wisconsin

- Shoreline of latest stage of Lake Chicago (Where defined by beach deposits or wave-cut cliffs)
- Approximate position of shorelines of Lake Chicago (Where not defined by shore features but generalized with reference to contour lines)
- Definitely determined boundary between deposits
- Indefinite boundary between deposits

Silurian

- Boundaries between deposits determined in 1896-98, but now largely or completely destroyed or obscured. (W. C. Alden, U. S. Geol. Survey Geol. Atlas, Chicago folio [No. 81], 1904)
- Glacial striae, oriented in direction
- Rock quarry
- Sand or gravel pit
- Clay pit

Scale

Scale 1:50,000

Contour interval 5 feet

Datum is mean sea level

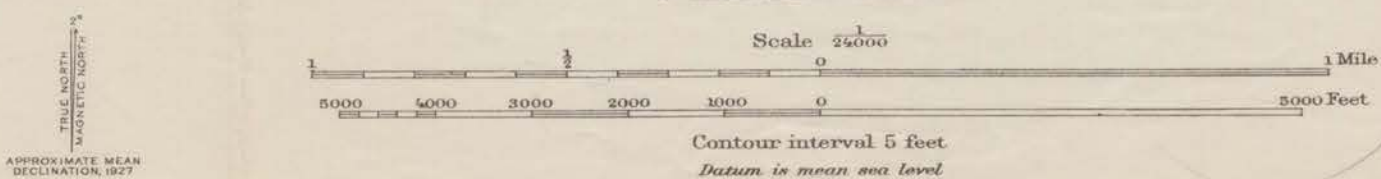
Topographic base surveyed in cooperation with the U. S. Geological Survey, 1927; 1936; 1938

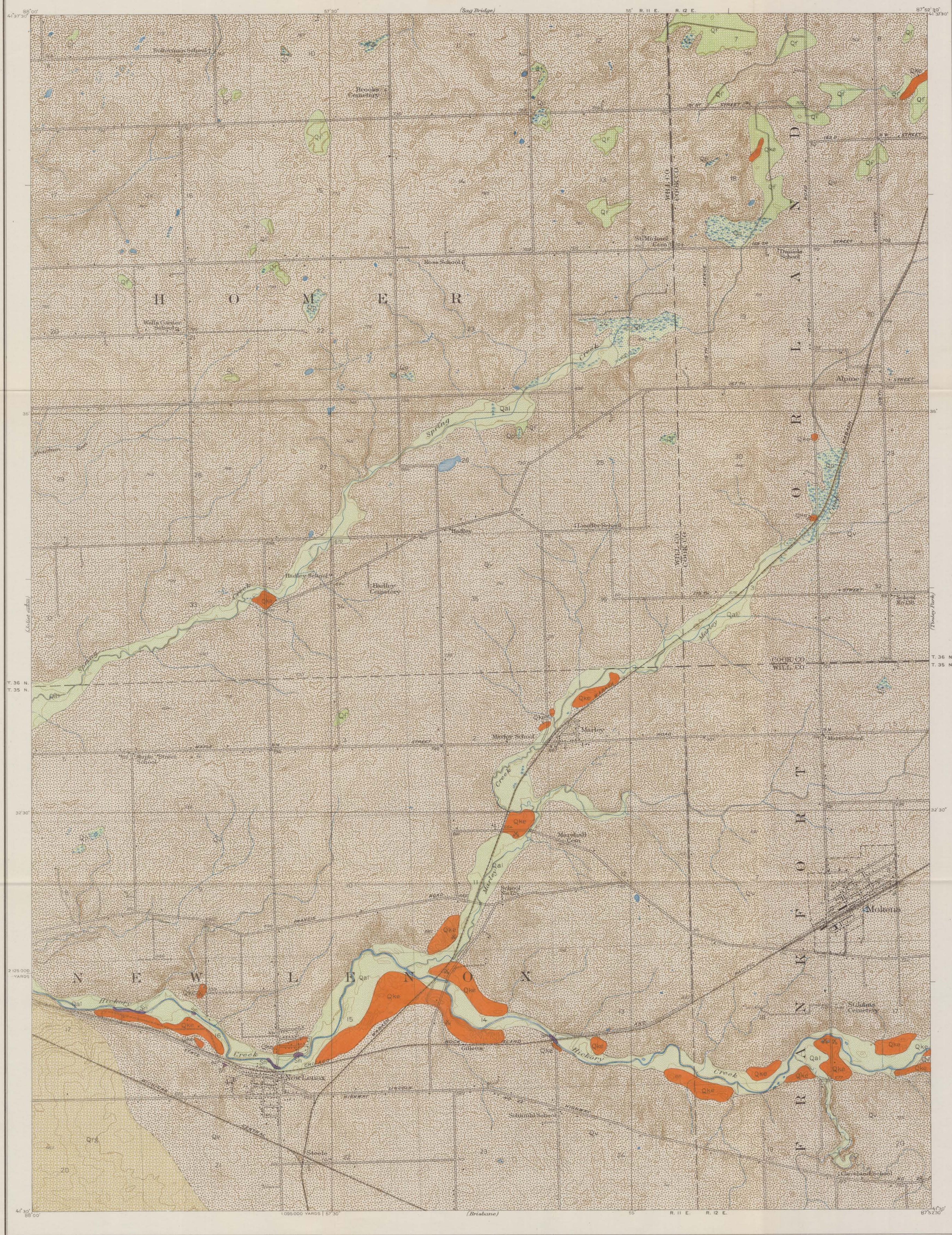
SURFICIAL GEOLOGY OF THE CALUMET LAKE QUADRANGLE

BY
J HARLEN BRETZ

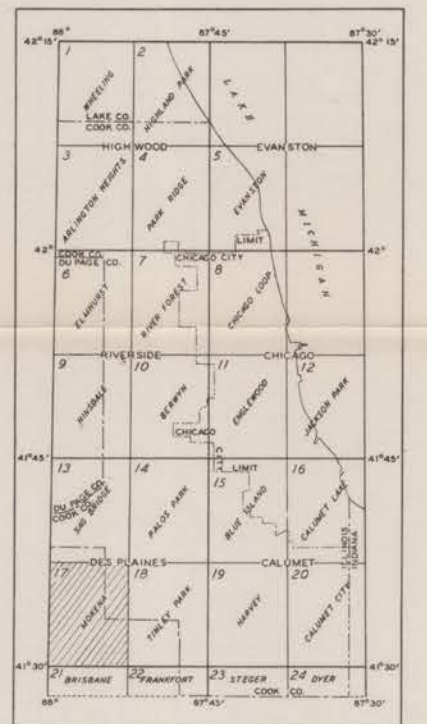
A. Hoen & Co.

Geologically surveyed in 1930-1932.
In connection with other quadrangles of the Chicago area.





- LEGEND**
- Recent**
- Peat and muck deposits
 - Basin fill of surface wash
 - Alluvium (Silt, sand, and gravel deposited by present stream)
 - Kames, eskers, and similar deposits (Poorly sorted sand and gravel deposited in close relation to glacial ice)
- Wisconsin**
- Valparaiso moraine
 - Rockdale ground-moraine
- Silurian**
- Niagara series of undifferentiated dolomitic formations, exposed
- Definitely determined boundary between deposits
- Indefinite boundary between deposits
- Sand or gravel pit

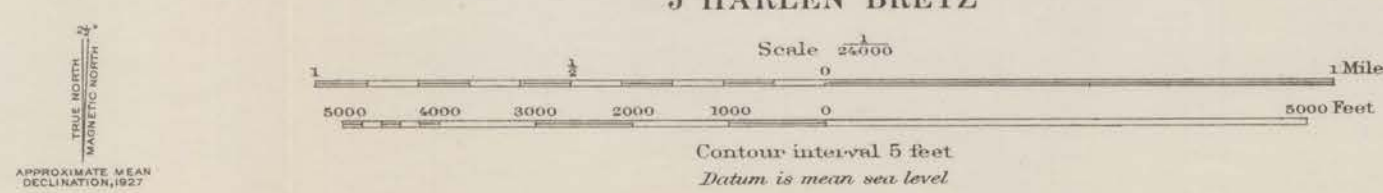


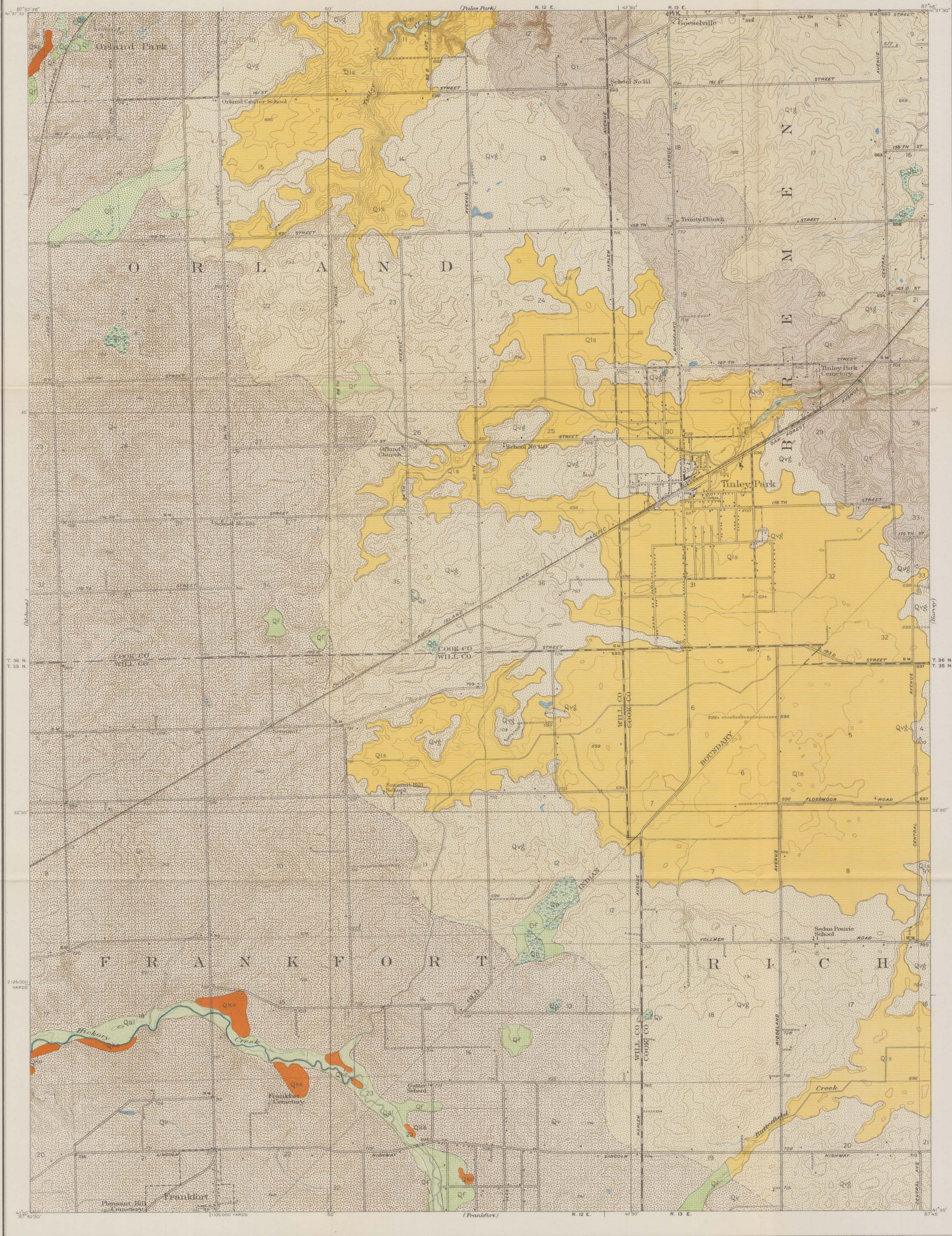
Topographic base surveyed in cooperation with the U. S. Geological Survey, 1927

SURFICIAL GEOLOGY OF THE MOKENA QUADRANGLE

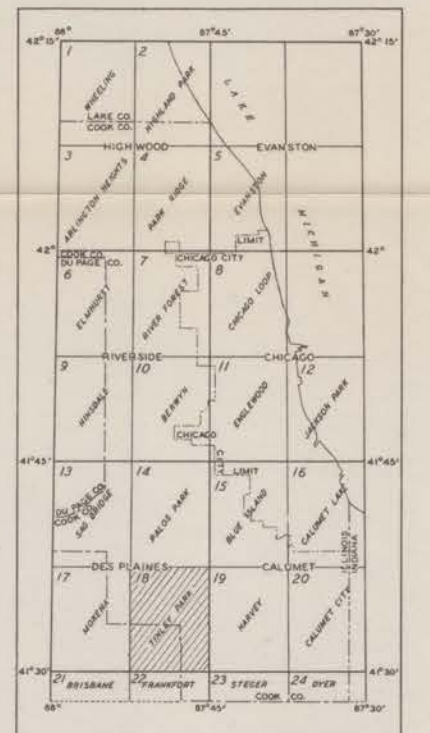
BY
J HARLEN BRETZ

Geologically surveyed in 1930-1932.
In connection with other quadrangles of the Chicago area.





- LEGEND**
- Recent**
- Qp Peat and muck deposits
 - Qr Basin fills of surface wash
 - Qal Alluvium (Silt, sand, and gravel deposited by present streams)
 - Qls Glacial lake bottom (Covered by lacustrine silt and sand)
 - Qke Kames, eskers, and similar deposits (Poorly sorted sand and gravel deposited in close relation to glacial ice)
- Wisconsin**
- Qtg Tinley ground-moraine
 - Qt Tinley moraine
 - Qvg Valparaiso ground-moraine
 - Qv Valparaiso moraine
- Definitely determined boundary between deposits
- Indefinite boundary between deposits

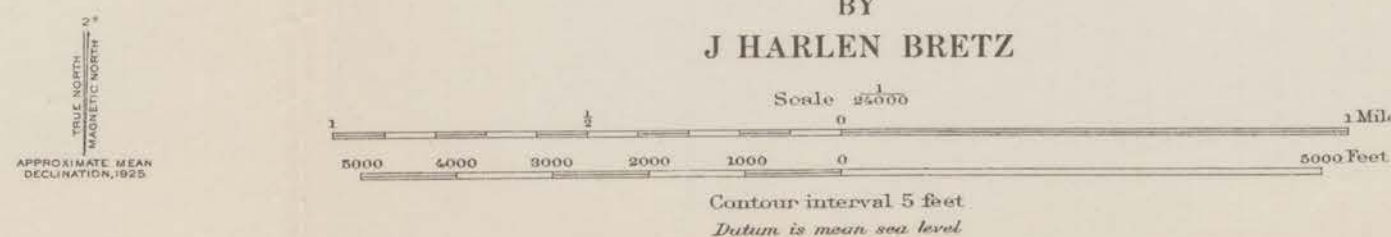


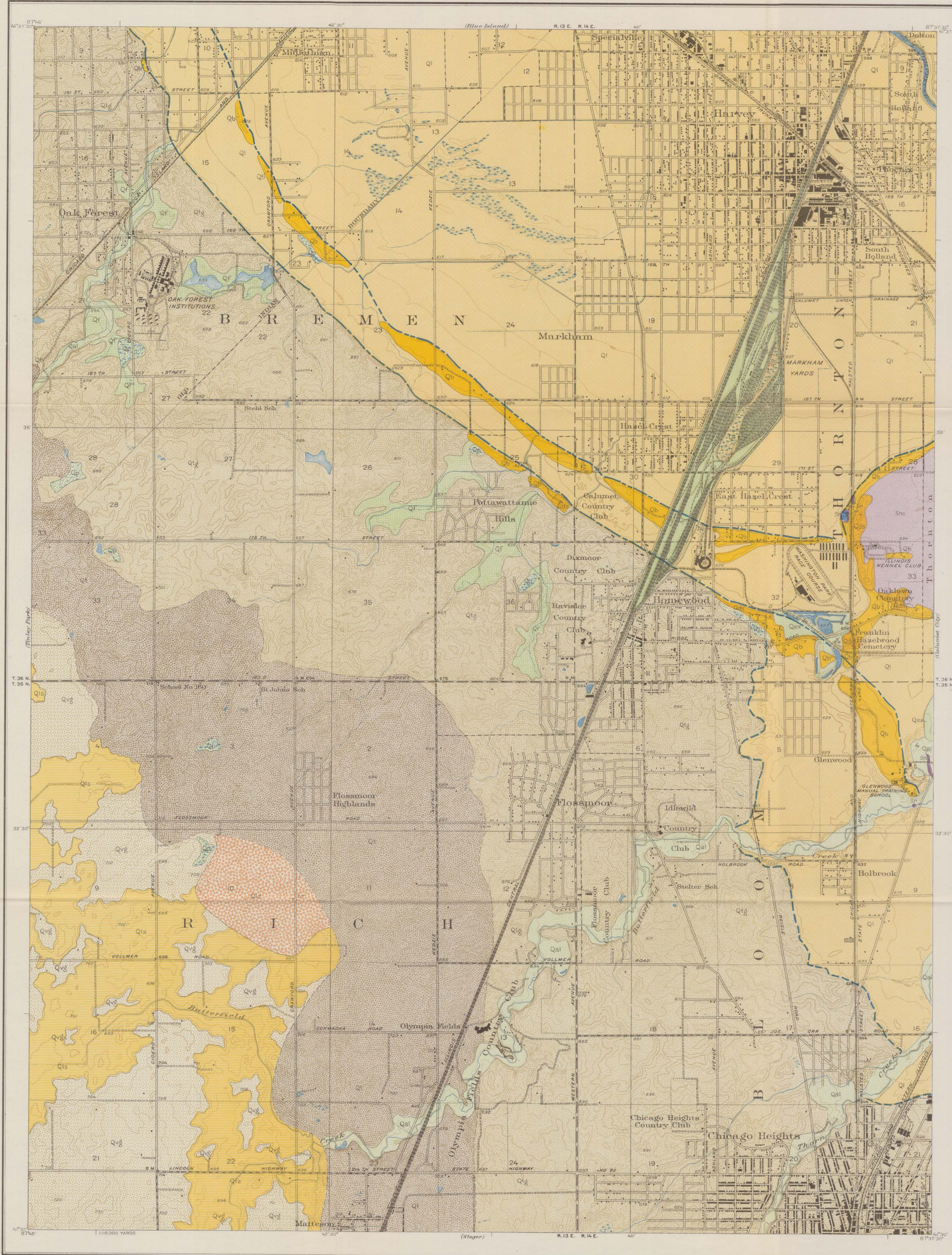
Topographic base surveyed in cooperation with the U. S. Geological Survey, 1926

SURFICIAL GEOLOGY OF THE TINLEY PARK QUADRANGLE
BY
J HARLEN BRETZ

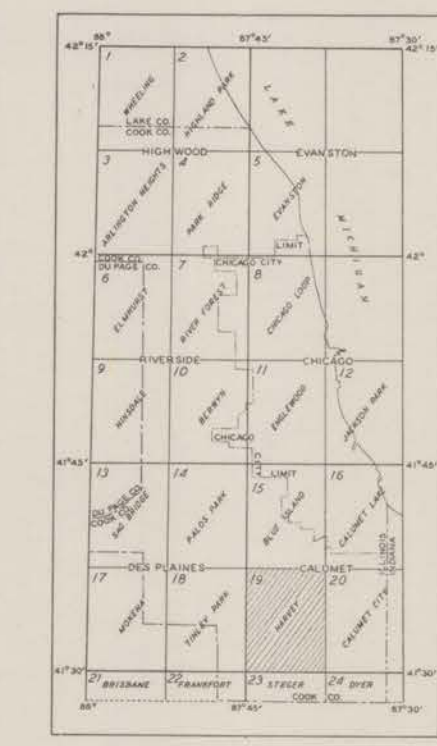
A. Hoan & Co

Geologically surveyed in 1930-1932. in connection with other quadrangles of the Chicago area.





- LEGEND**
- Recent**
- Qm Made land (Artificial fills, spoil banks, dumps, etc.)
 - Qex Excavations in unconsolidated material
 - Qp Peat and muck deposits
 - Qf Basin fills of surface wash
 - Qal Alluvium (Silt, sand, and gravel deposited by present streams)
 - Qds Dune sand (Mainly beach sand reworked by wind)
 - Qb Beach ridges and related deposits of sand and gravel (Note shading the various stages of Lake Chicago)
 - Ql Glacial lake bottom (Commonly without lacustrine deposits)
 - Qls Glacial lake bottom (Covered by lacustrine silt and sand)
 - Qlg Deltaic deposits in glacial lakes (Chiefly silt and sand)
 - Qtg Tinley ground-moraine
 - Qtl Tinley moraine
 - Qvg Valparaiso ground-moraine
- Wisconsin**
- Snc Niagara series of undifferentiated dolomitic formations, exposed
 - Sncg Niagara formations, thinly covered
- Silurian**
- Shoreline of Calumet stage of Lake Chicago (Where defined by beach deposits or wave-cut cliffs)
 - Shoreline of Glenwood (oldest) stage of Lake Chicago (Where defined by beach deposits or wave-cut cliffs)
 - Approximate position of shorelines of Lake Chicago (Where not defined by shore features but generalized with reference to contour lines)
 - Definitely determined boundary between deposits
 - Indefinite boundary between deposits
 - Rock quarry
 - Sand or gravel pit

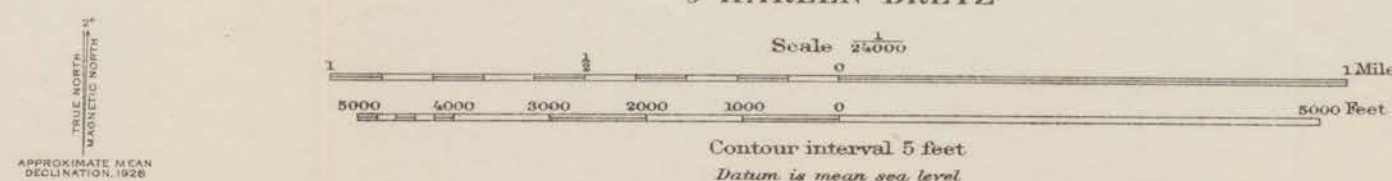


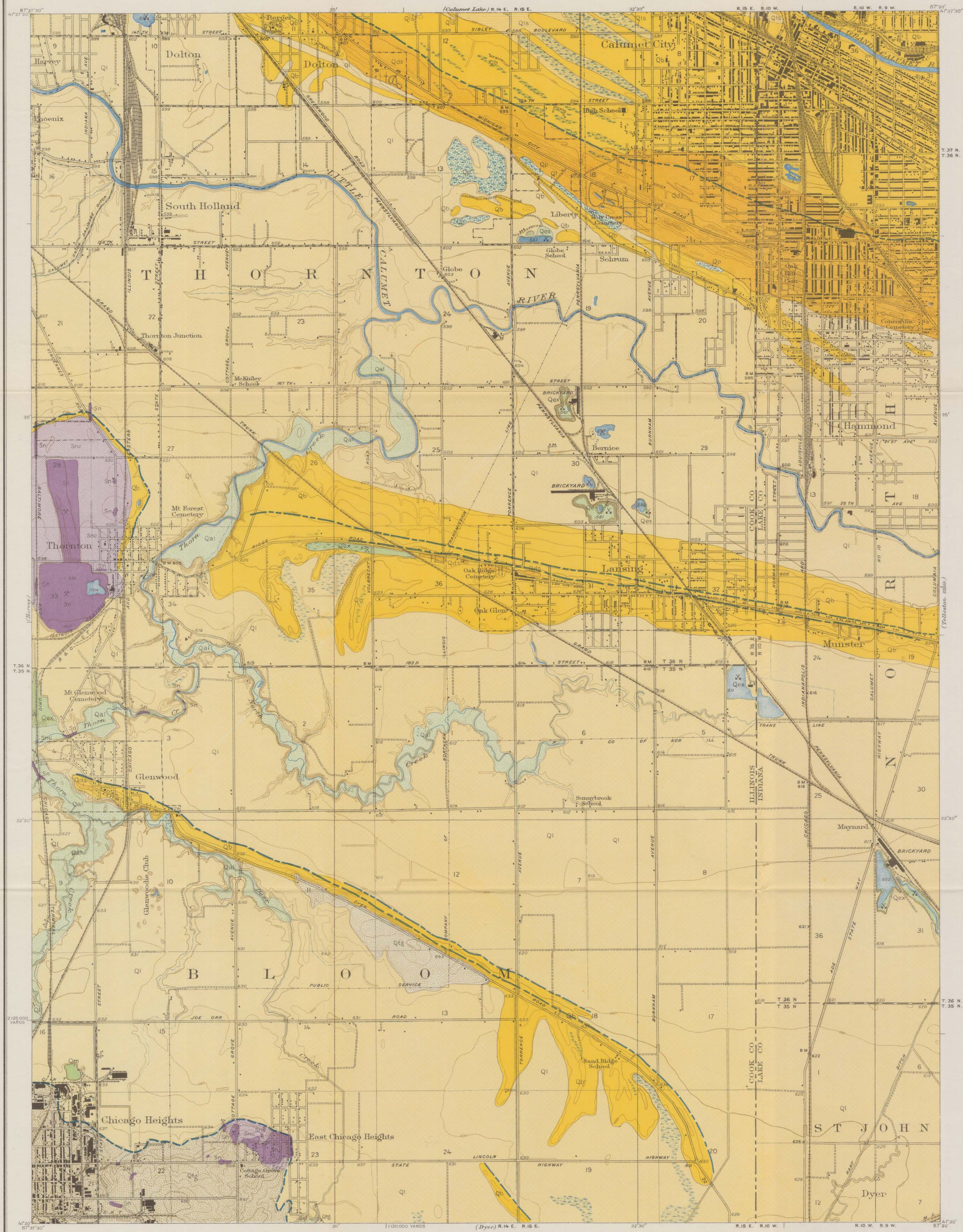
Topographic base surveyed in cooperation with the U. S. Geological Survey, 1926

SURFICIAL GEOLOGY OF THE HARVEY QUADRANGLE
BY
J. HARLEN BRETZ

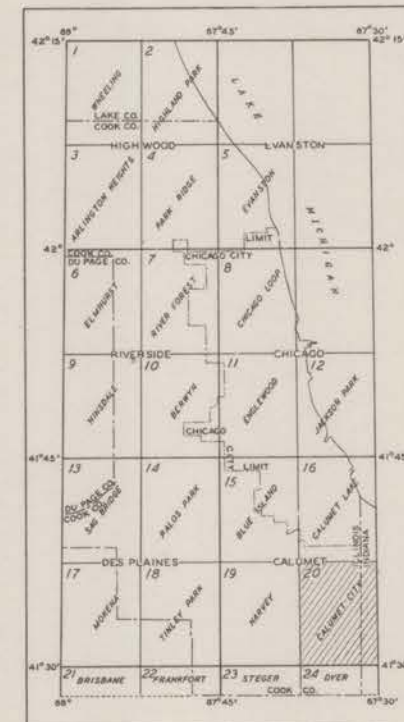
A. HOEN & CO.

Geologically surveyed in 1930-1932. In connection with other quadrangles of the Chicago area.





- LEGEND**
- Recent**
- Qm Made land (Artificial fills, spoil banks, dumps, etc.)
 - Qex Excavations in unconsolidated material
 - Q Peat and muck deposits
 - Qal Alluvium (Silt, sand, and gravel deposited by present streams)
 - Qds Dune sand (Mainly beach sand reworked by wind)
 - Qb Beach ridges and related deposits of sand and gravel (Made during and since the various stages of Lake Chicago)
 - Ql Glacial lake bottom (Commonly without lacustrine deposits)
 - Qls Glacial lake bottom (Covered by lacustrine silt and sand)
 - Qlg Tinley ground-moraine
- Wisconsin**
- Sn Niagara series of undifferentiated dolomitic formations, exposed
 - Sn Niagara formations, thinly covered
- Silurian**
- Shoreline of Tolleston stage of Lake Chicago (Where defined by beach deposits or wave-cut edge)
 - Shoreline of Calumet stage of Lake Chicago (Where defined by beach deposits or wave-cut edge)
 - Shoreline of Glenwood (oldest) stage of Lake Chicago (Where defined by beach deposits or wave-cut edge)
 - Approximate position of shorelines of Lake Chicago (Where not defined by shore features but generalized with reference to contour lines)
 - Definitely determined boundary between deposits
 - Indefinite boundary between deposits
 - Glacial striae, oriented in direction
 - Rock quarry
 - Sand or gravel pit
 - Clay pit

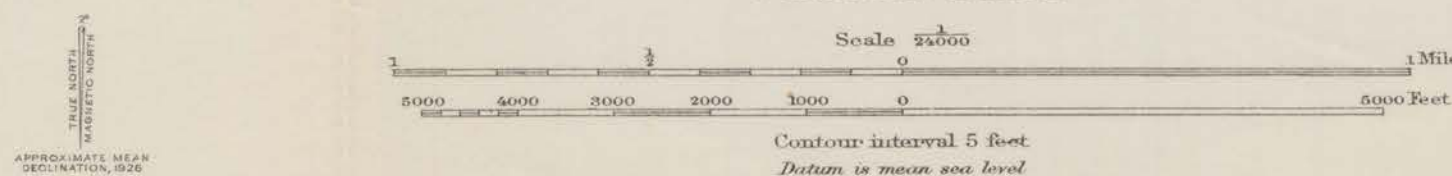


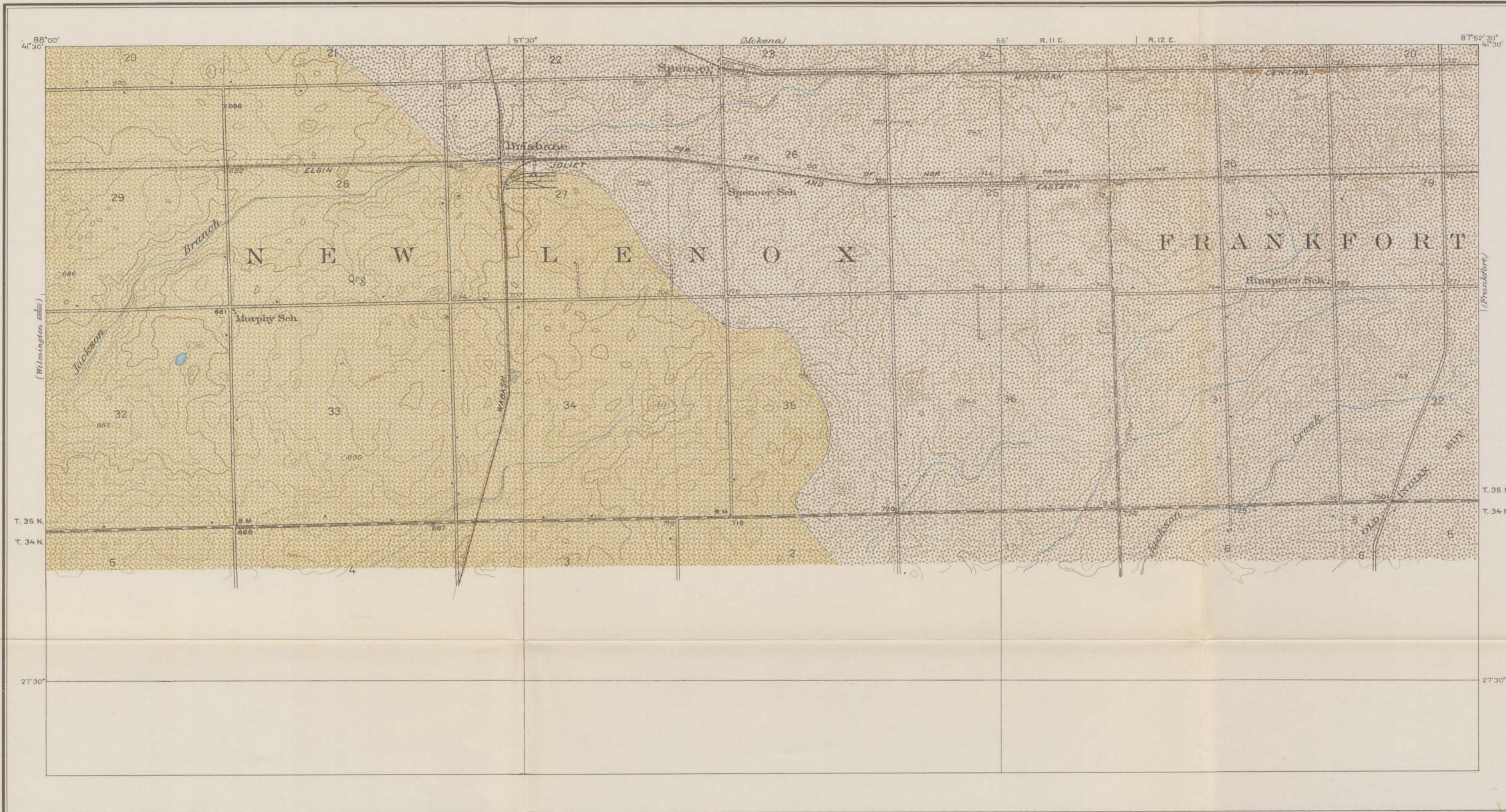
Topographic base surveyed in cooperation with the U. S. Geological Survey, 1926

SURFICIAL GEOLOGY OF THE CALUMET CITY QUADRANGLE

BY
J HARLEN BRETZ

Geologically surveyed in 1930-1932. In connection with other quadrangles of the Chicago area.





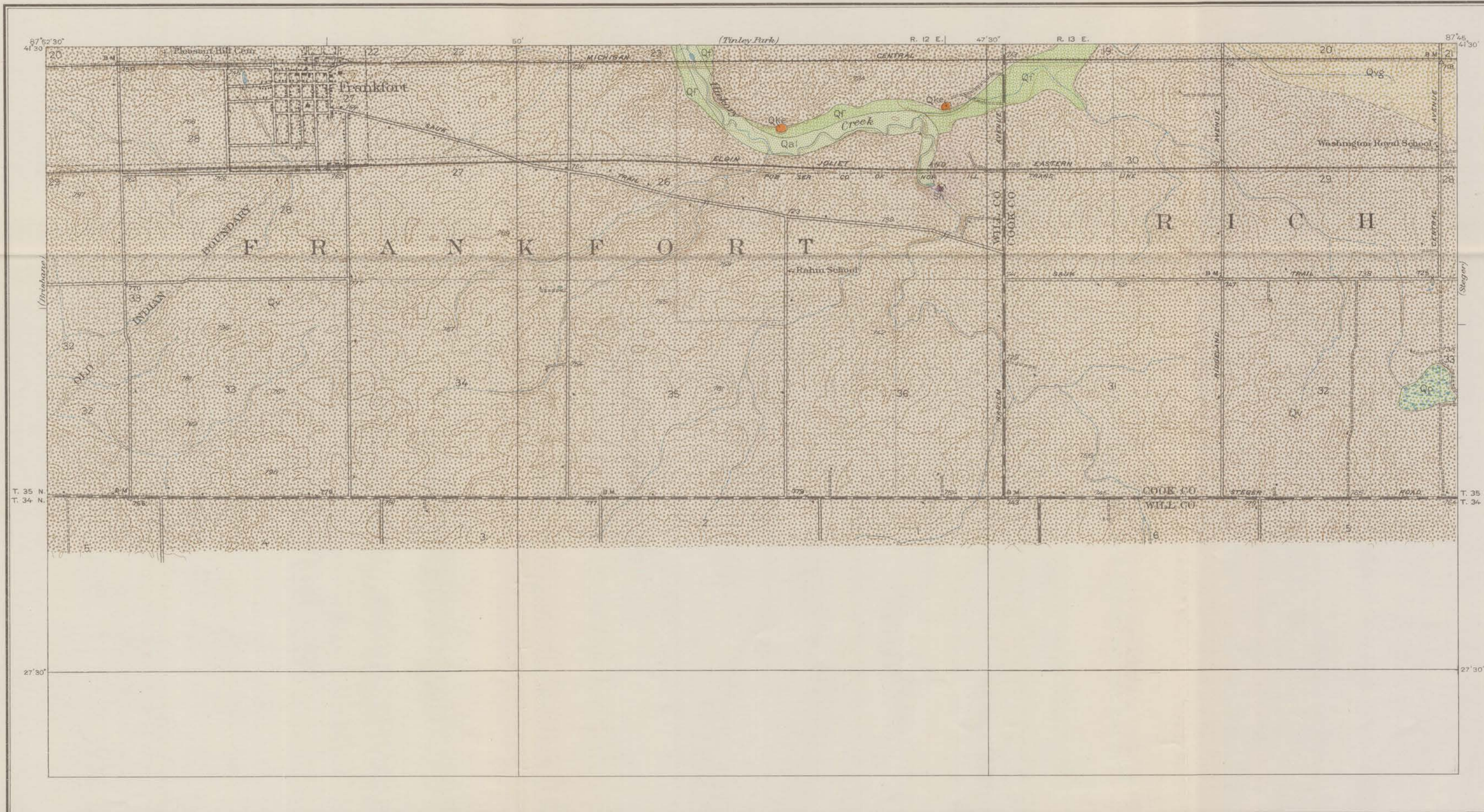
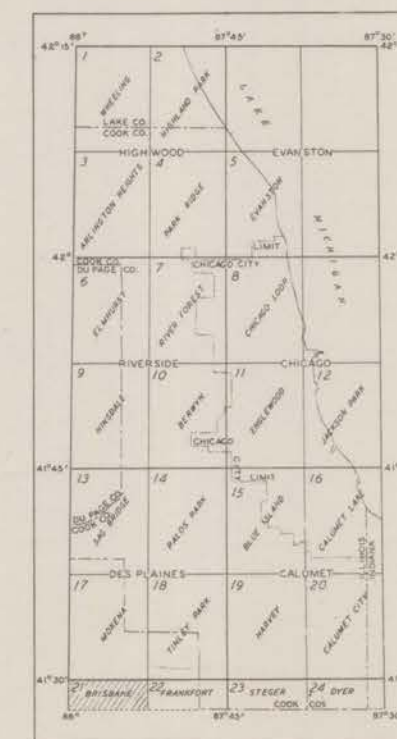
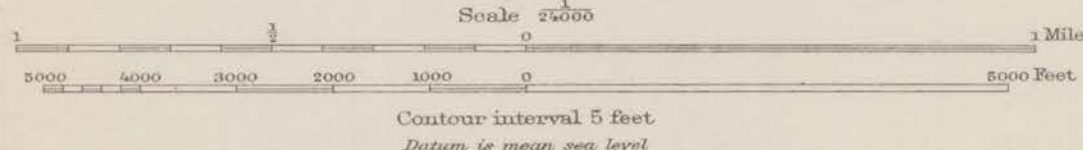
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SURFICIAL GEOLOGY OF PART OF THE BRISBANE QUADRANGLE

BY
J HARLEN BRETZ

A. HOEN & CO.

Geologically surveyed in 1930-1932.
In connection with other
quadrangles of the Chicago area.



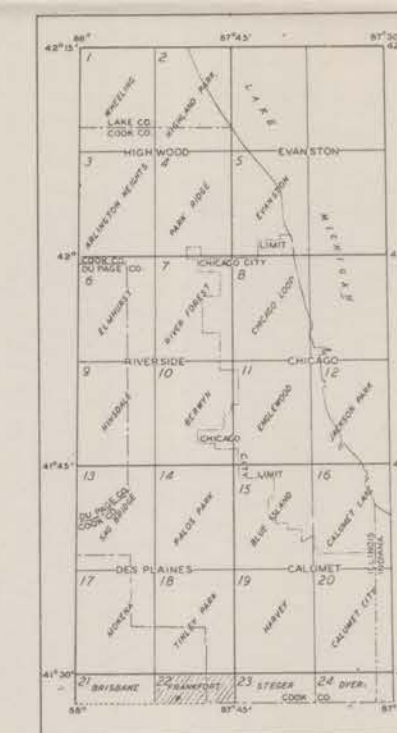
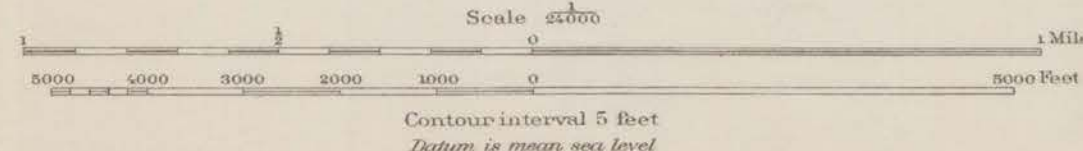
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SURFICIAL GEOLOGY OF PART OF THE FRANKFORT QUADRANGLE

BY
J HARLEN BRETZ

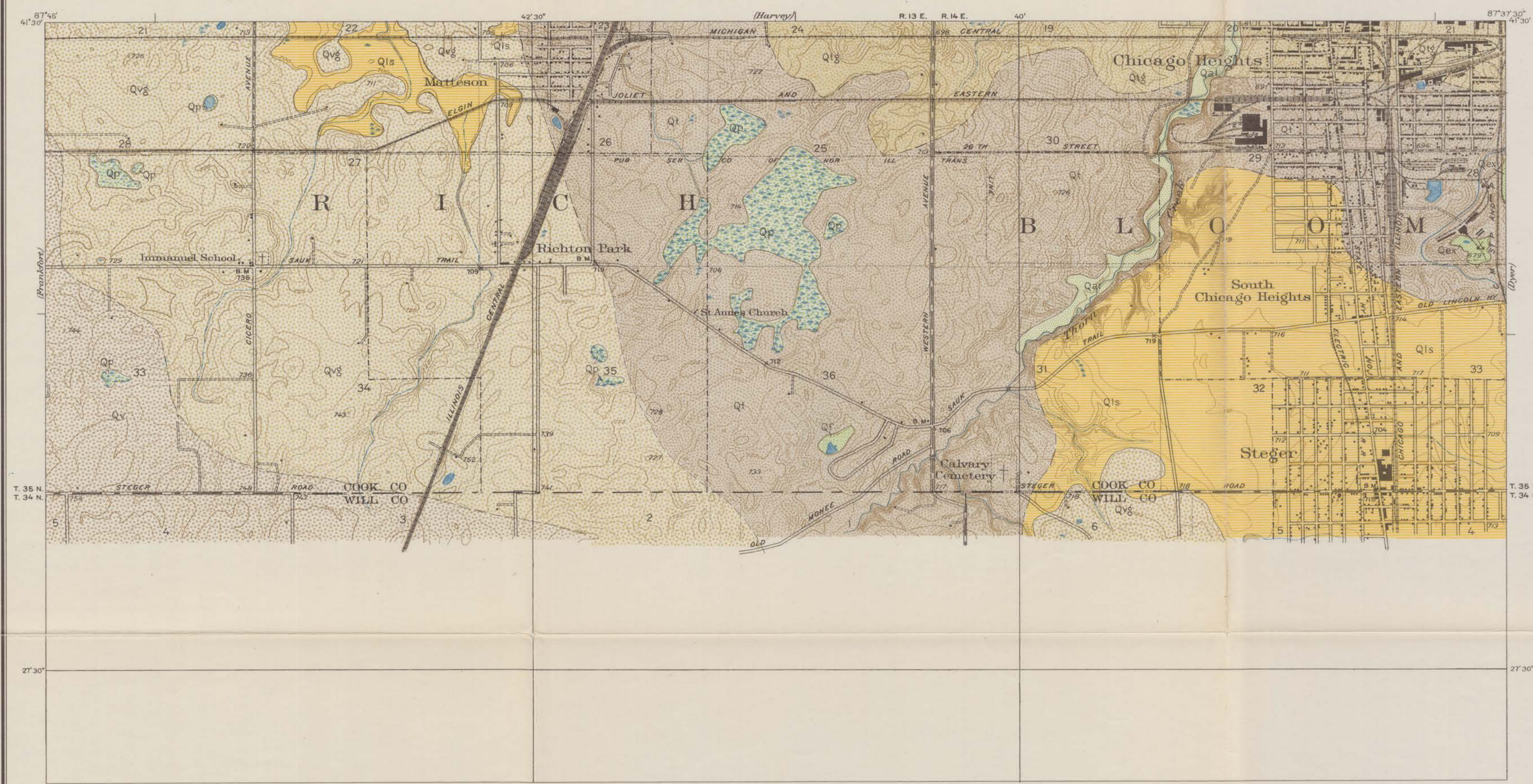
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LEGEND

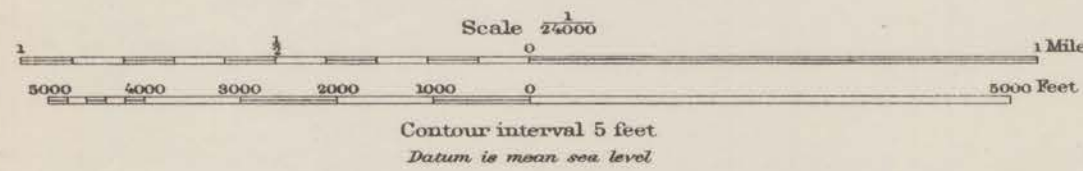
- Recent**
- Qf Pent and mud deposits
 - Qa Basin fills of surface wash
 - Qa1 Alluvium (SB, sand, and gravel deposited by recent streams)
 - Qke Kames, eskers, and similar deposits (Poorly sorted sand and gravel deposited in close relation to glacial ice)
 - Qvg Valparaiso ground-moraine
 - Qv Valparaiso moraine
 - Qrg Rockdale ground-moraine
- Sturian**
- Sn Niagara series of undifferentiated dolomitic formations, exposed
- Definitely determined boundary between deposits
- Indefinite boundary between deposits
- X Rock quarry



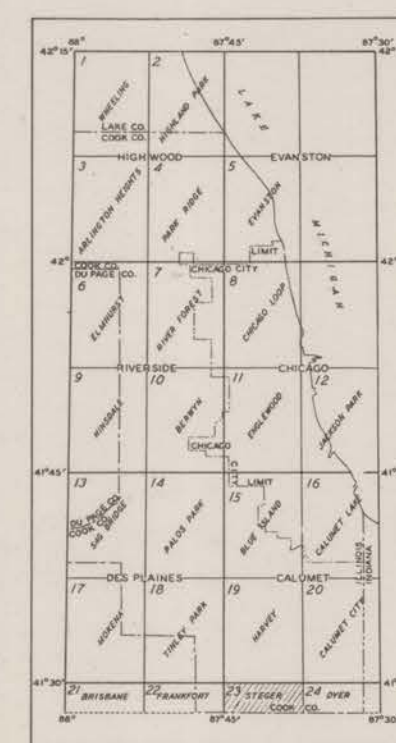
Topographic base surveyed in cooperation
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SURFICIAL GEOLOGY OF PART OF THE STEGER QUADRANGLE

BY
J HARLEN BRETZ

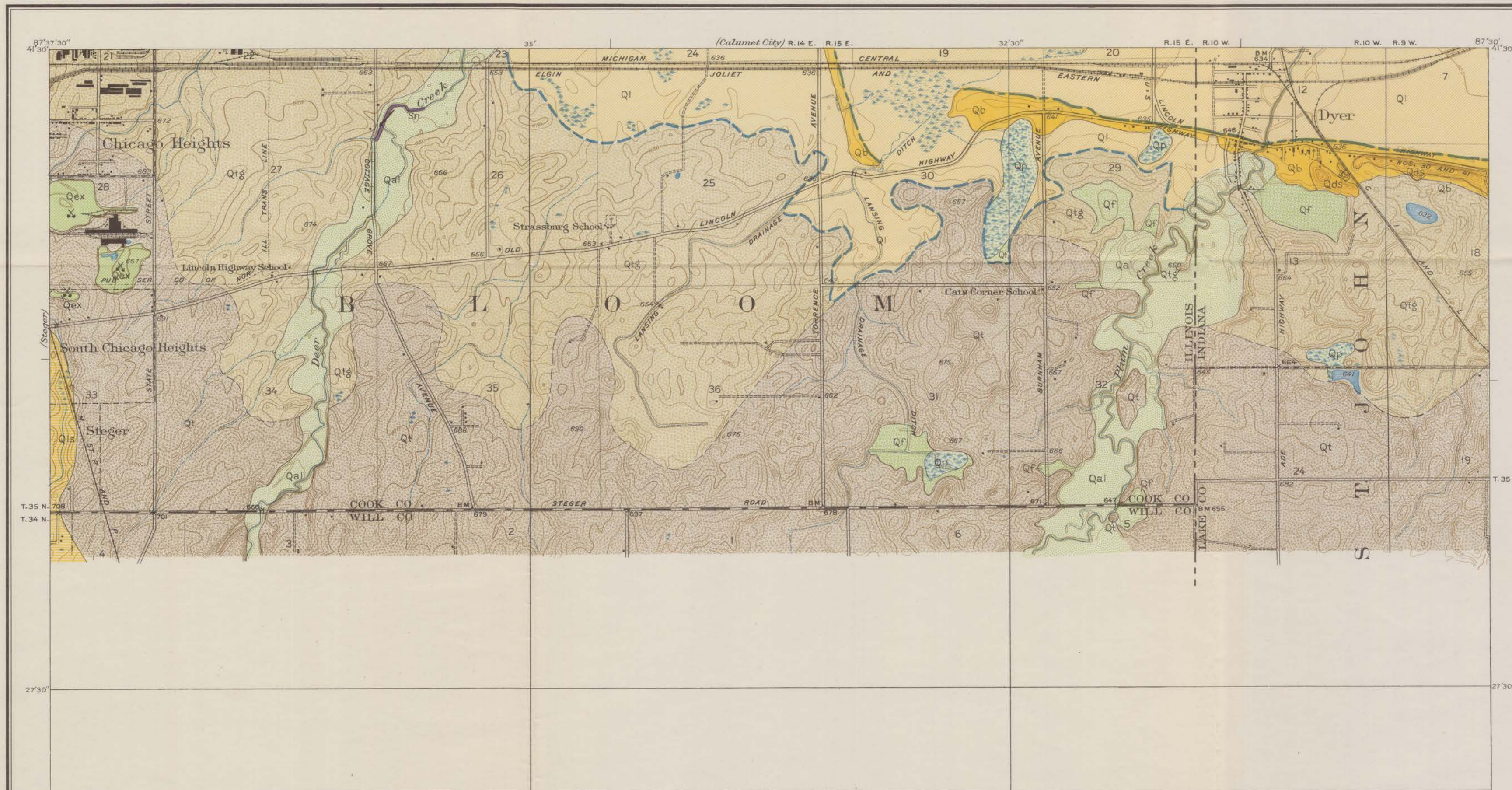


Geologically surveyed in 1930-1932.
In connection with other
quadrangles of the Chicago area.



LEGEND

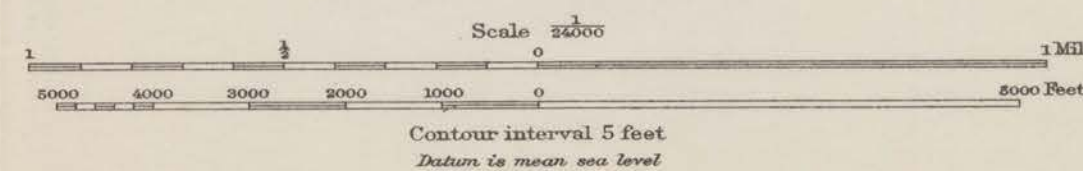
- Qex Excavations in unconsolidated material
 - Qp Peat and muck deposits
 - Qf Basin fills of surface wash
 - Qa Alluvium (Silt, sand, and gravel deposited by present streams)
 - Qd Dune sand (Mainly beach sand reworked by wind)
 - Qb Beach ridges and related deposits of sand and gravel (Made during the various stages of Lake Chicago)
 - Ql Glacial lake bottom (Commonly without lacustrine deposits)
 - Qls Glacial lake bottom (Covered by lacustrine silt and sand)
 - Qlg Tiney ground moraine
 - Qt Tiney moraine
 - Qm Valparaiso ground moraine
 - Qn Valparaiso moraine
 - Sn Niagara series of undifferentiated dolomitic formations, exposed
- Shoreline of Glenwood (oldest) stage of Lake Chicago (Where defined by beach deposits or wave-cut cliffs)
- Approximate position of shorelines of Lake Chicago (Where not defined by shore features but generalized with reference to contour lines)
- Definitely determined boundary between deposits
- Indefinite boundary between deposits
- Glacial striae, oriented in direction
- Sand or gravel pit
- Clay pit



Topographic base surveyed in cooperation
with the U. S. Geological Survey, 1927

SURFICIAL GEOLOGY OF PART OF THE DYER QUADRANGLE

BY
J HARLEN BRETZ



Geologically surveyed in 1930-1932.
In connection with other
quadrangles of the Chicago area.

